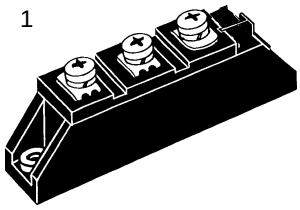
Contents

Package style	I_{FAVM} A	V_{RRM}/V_{DRM} (V) 800	1200	1400	1600	1800	2000	2200	Type	Page
	Diode Modules									
1	113	●		●	●				MDA 72	D8 - 11
1	36	●	●	●	●	●			MDD 26	D8 - 2
1	64	●	●	●	●	●			MDD 44	D8 - 5
1	95	●	●	●	●	●			MDD 56	D8 - 8
1	113	●	●	●	●	●			MDD 72	D8 - 11
1	120	●	●	●	●	●	●	●	MDD 95	D8 - 14
2	165	●	●	●	●	●			MDD 142	D8 - 17
2	190	●	●	●	●	●			MDD 172	D8 - 20
3	270	●	●	●	●				MDD 220	D8 - 23
3	290	●	●	●	●				MDD 250	D8 - 26
4	270		●	●	●	●	●	●	MDD 255	D8 - 29
3	305	●	●	●	●				MDD 310	D8 - 32
4	310		●	●	●	●	●	●	MDD 312	D8 - 35
5	560		●	●	●	●	●	●	MDO 500	D8 - 38

1



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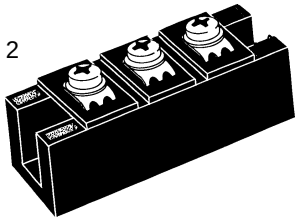

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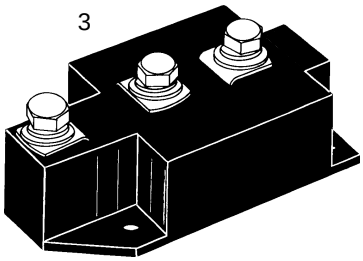

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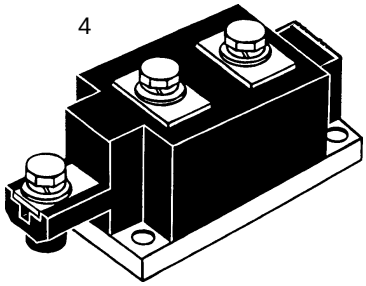

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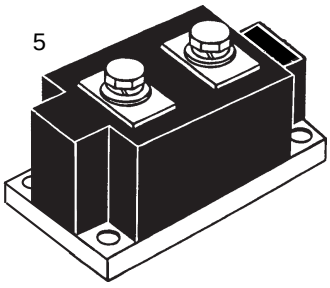
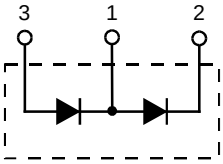


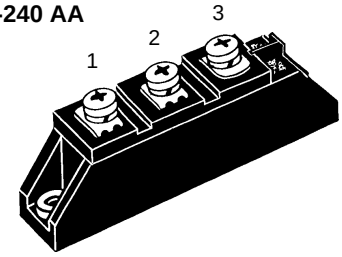
Diode Modules

I_{FRMS} = 2x 60 A
I_{FAVM} = 2x 36 A
V_{RRM} = 800-1800 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 26-08N1 B
1300	1200	MDD 26-12N1 B
1500	1400	MDD 26-14N1 B
1700	1600	MDD 26-16N1 B
1900	1800	MDD 26-18N1 B



TO-240 AA



Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		60	A
I_{FAVM}	T_C = 100°C; 180° sine		36	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	650	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	760	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	580	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	630	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	2100	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	2400	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	1700	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	1900	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-4/22-35	Nm/lb.in.
	Terminal connection torque (M5)		2.5-4/22-35	Nm/lb.in.
Weight	Typical including screws		90	g

Symbol	Test Conditions		Characteristic Values	
I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		10	mA
V_F	I_F = 80 A; T_{VJ} = 25°C		1.38	V
V_{T0}	For power-loss calculations only		0.8	V
r_T	$T_{VJ} = T_{VJM}$		6.1	mΩ
Q_S	T_{VJ} = 125°C; I_F = 25 A, -di/dt = 0.6 A/µs		50	µC
I_{RM}			6	A
R_{thJC}	per diode; DC current	other values see Fig. 6/7	1.0	K/W
	per module		0.5	K/W
R_{thJK}	per diode; DC current		1.2	K/W
	per module		0.6	K/W
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

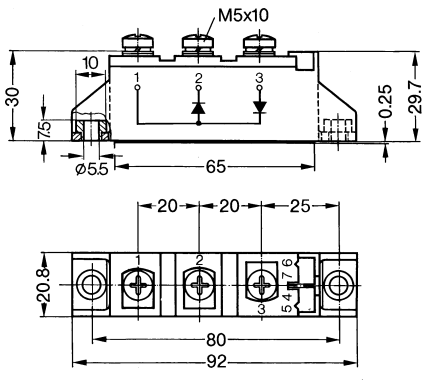
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



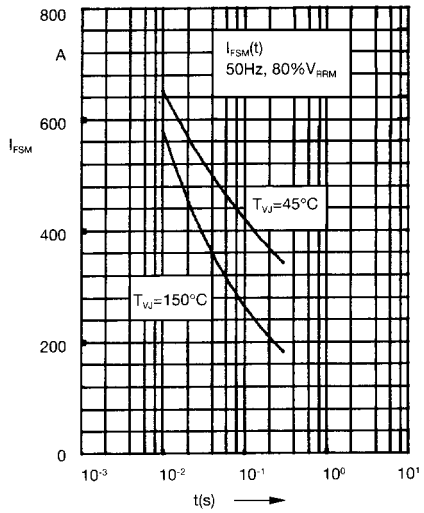


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

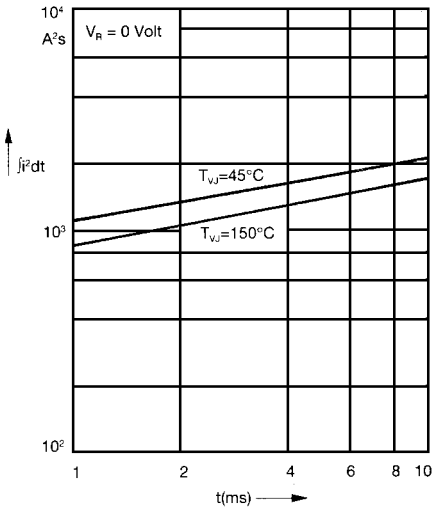


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

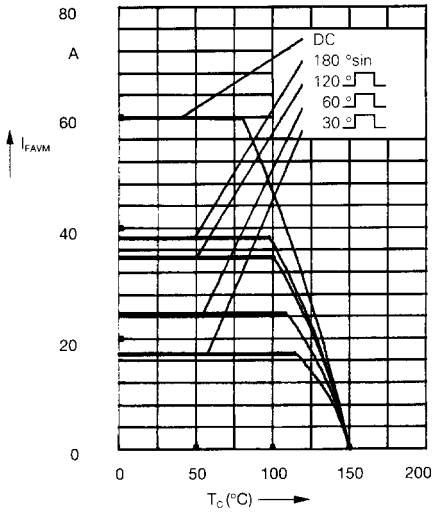


Fig. 2a Maximum forward current at case temperature

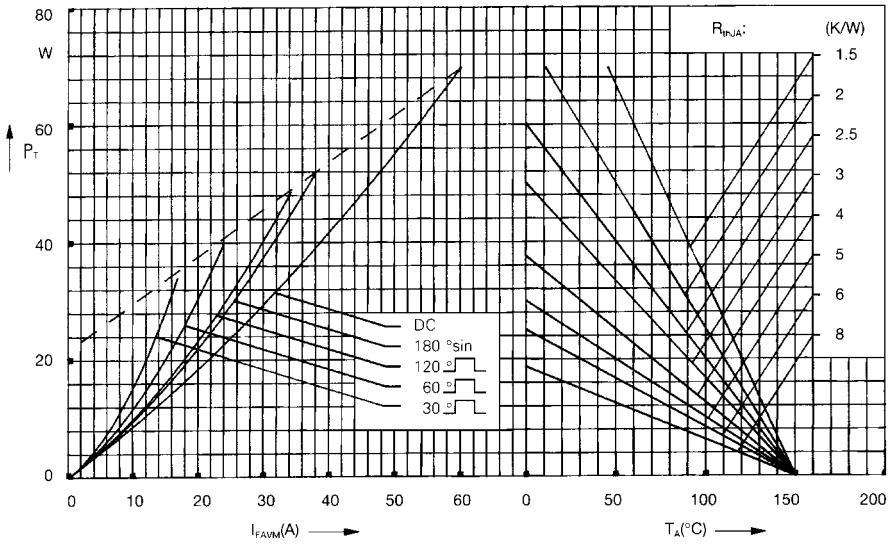


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

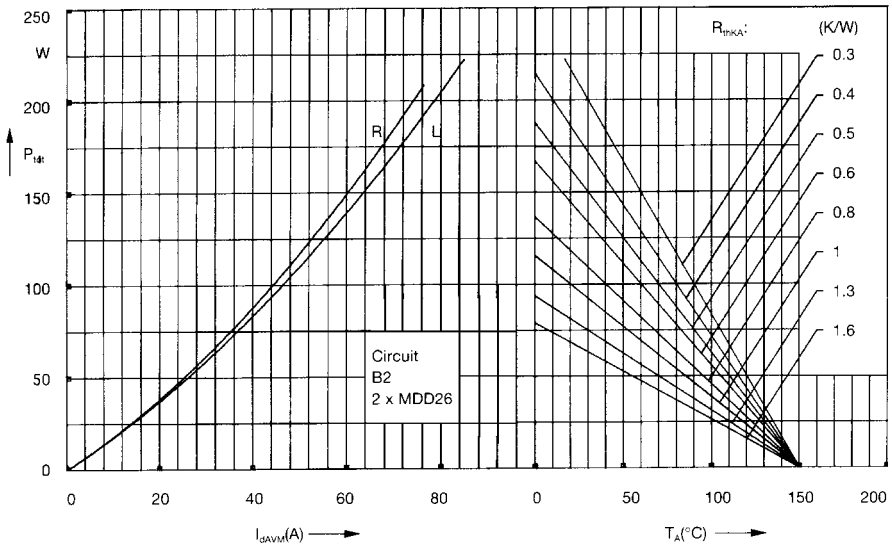


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

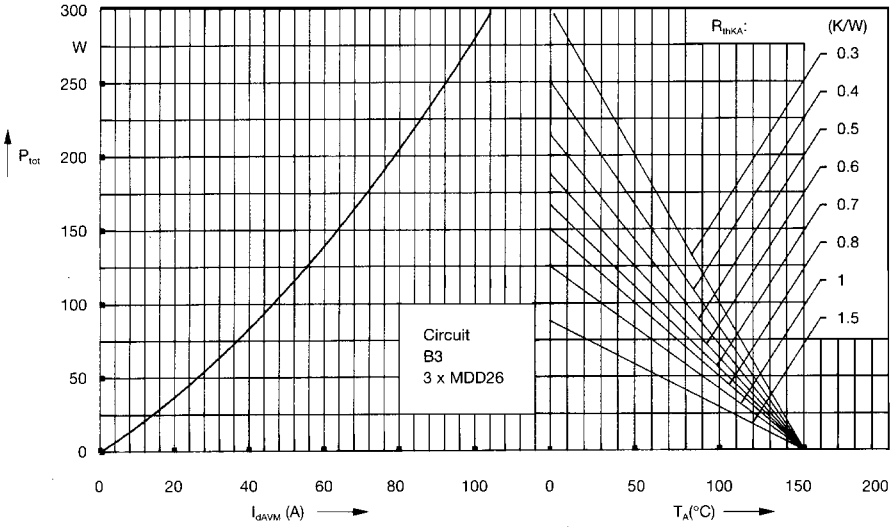


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

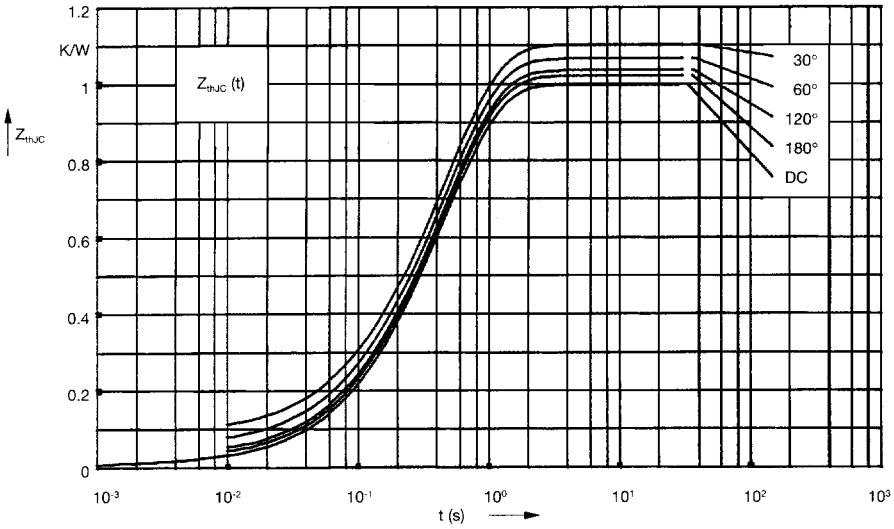


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	1.00
180°	1.02
120°	1.04
60°	1.07
30°	1.10

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.01	0.0012
2	0.03	0.095
3	0.96	0.455

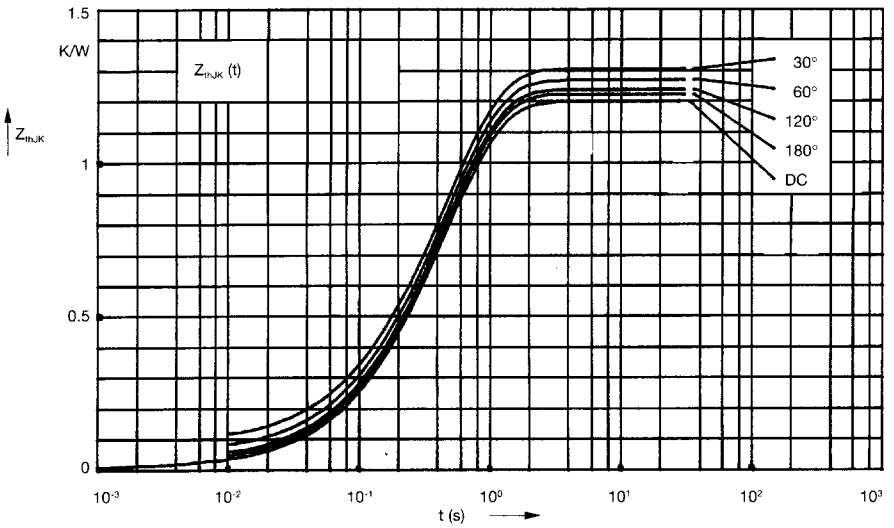


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	1.20
180°	1.22
120°	1.24
60°	1.27
30°	1.30

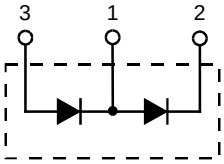
Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.01	0.0012
2	0.03	0.095
3	0.96	0.455
4	0.2	0.495

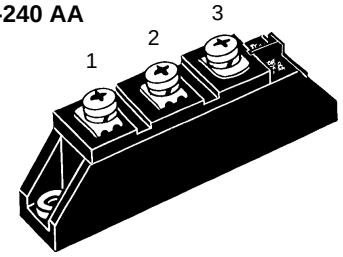
Diode Modules

I_{FRMS} = 2x 100 A
I_{FAVM} = 2x 64 A
V_{RRM} = 800-1800 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 44-08N1 B
1300	1200	MDD 44-12N1 B
1500	1400	MDD 44-14N1 B
1700	1600	MDD 44-16N1 B
1900	1800	MDD 44-18N1 B



TO-240 AA



Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		100	A
I_{FAVM}	T_C = 92°C; 180° sine		64	A
	T_C = 100°C; 180° sine		59	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	1150	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1300	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	1000	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1200	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	6600	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	7000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	5000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	5950	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-4/22-35	Nm/lb.in.
	Terminal connection torque (M5)		2.5-4/22-35	Nm/lb.in.
Weight	Typical including screws		90	g

Symbol	Test Conditions		Characteristic Values	
I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		10	mA
V_F	I_F = 200 A; T_{VJ} = 25°C		1.60	V
V_{T0}	For power-loss calculations only		0.8	V
r_T	$T_{VJ} = T_{VJM}$		4.3	mΩ
Q_S	T_{VJ} = 125°C; I_F = 50 A, -di/dt = 0.64 A/µs		90	µC
I_{RM}			11	A
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.59	K/W
	per module		0.295	K/W
R_{thJK}	per diode; DC current		0.79	K/W
	per module		0.395	K/W
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

Features
- International standard package JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

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- Field supply for DC motors
- Battery DC power supplies

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- Simple mounting
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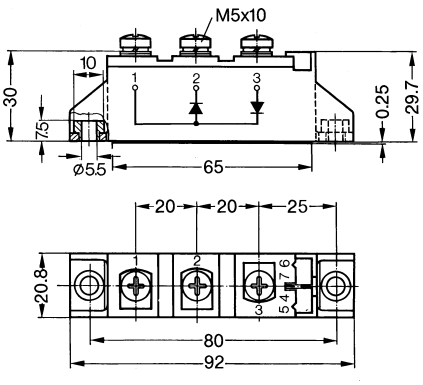
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

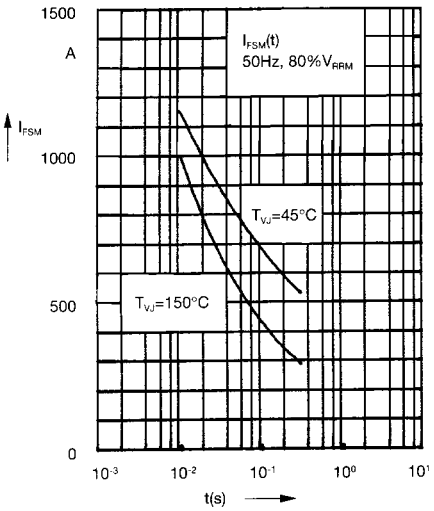


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

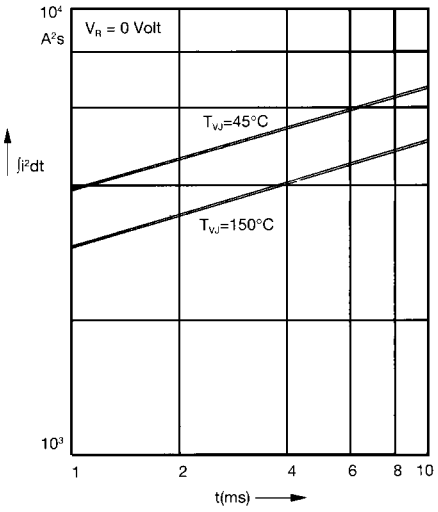


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

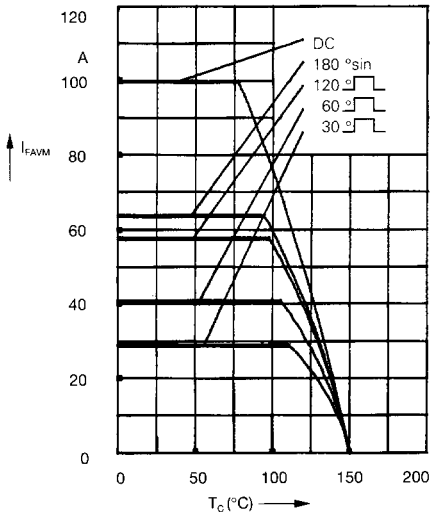


Fig. 2a Maximum forward current at case temperature

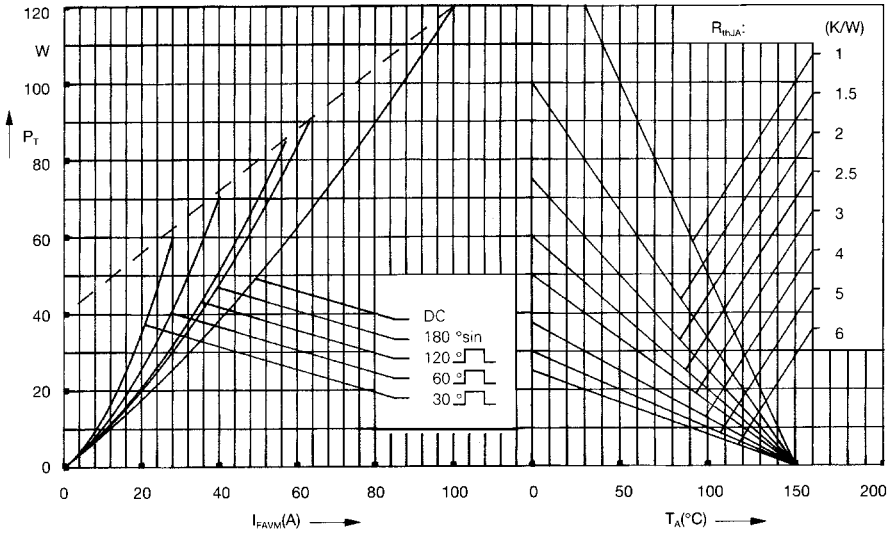


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

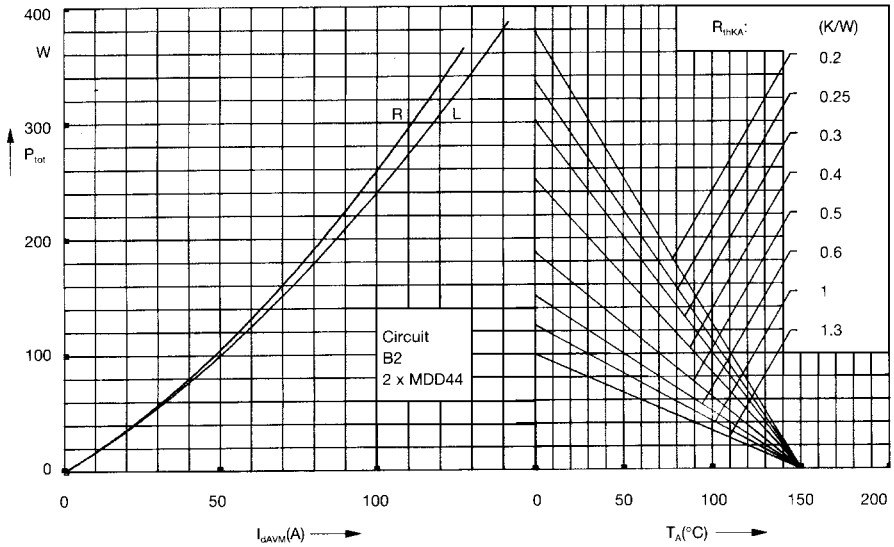


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

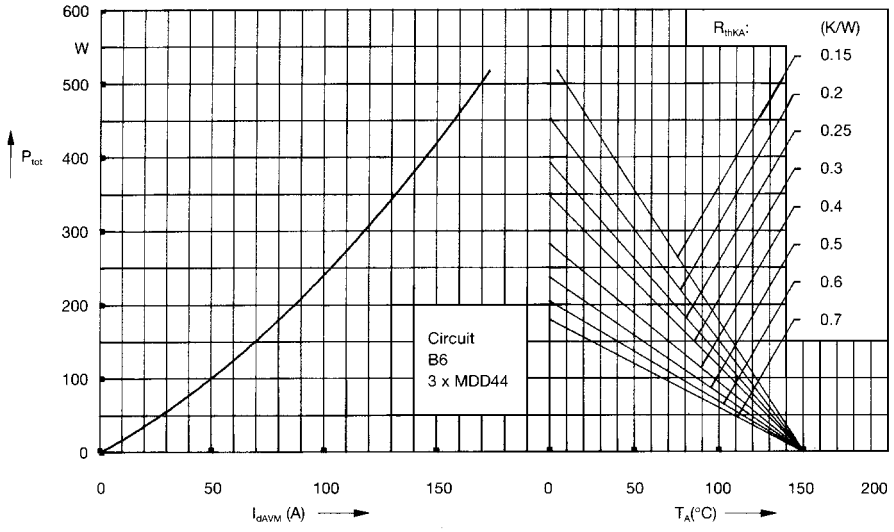


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

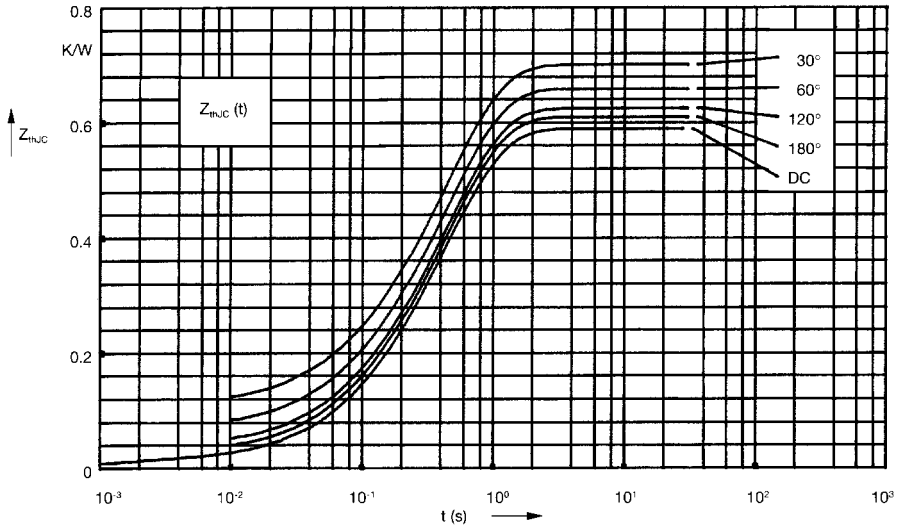


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.59
180°	0.61
120°	0.63
60°	0.66
30°	0.70

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455

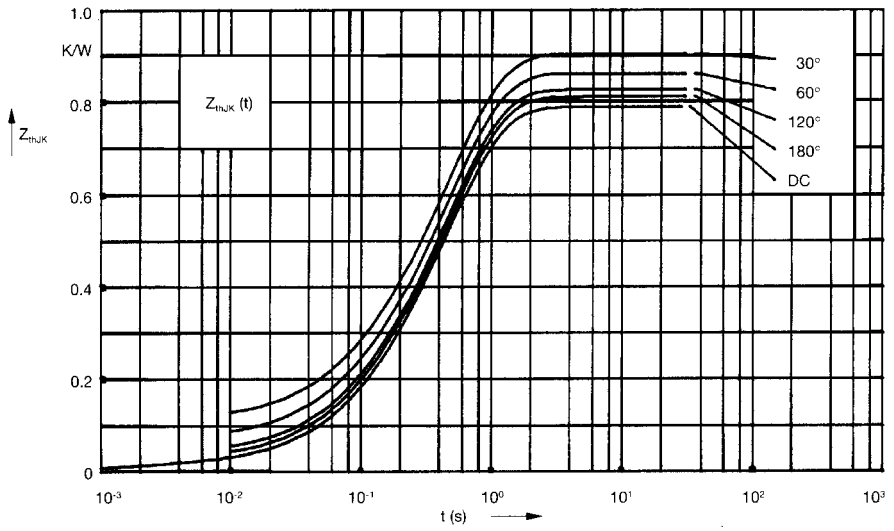


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.79
180°	0.81
120°	0.83
60°	0.86
30°	0.90

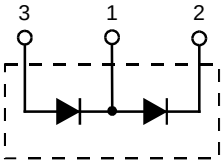
Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455
4	0.2	0.495

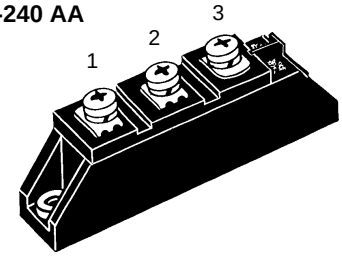
Diode Modules

I_{FRMS} = 2x 150 A
I_{FAVM} = 2x 95 A
V_{RRM} = 800-1800 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 56-08N1 B
1300	1200	MDD 56-12N1 B
1500	1400	MDD 56-14N1 B
1700	1600	MDD 56-16N1 B
1900	1800	MDD 56-18N1 B



TO-240 AA



Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		150	A
I_{FAVM}	T_C = 75°C; 180° sine		95	A
	T_C = 100°C; 180° sine		71	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	1400	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1650	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	1200	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1400	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	9800	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	11300	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	7200	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	8100	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-4/22-35	Nm/lb.in.
	Terminal connection torque (M5)		2.5-4/22-35	Nm/lb.in.
Weight	Typical including screws		90	g

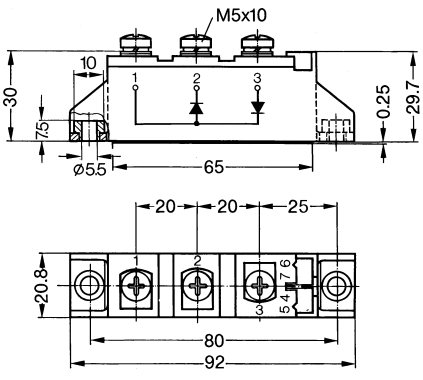
Symbol	Test Conditions		Characteristic Values	
I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		10	mA
V_F	I_F = 200 A; T_{VJ} = 25°C		1.48	V
V_{T0}	For power-loss calculations only		0.8	V
r_T	$T_{VJ} = T_{VJM}$		3	mΩ
Q_S	T_{VJ} = 125°C; I_F = 50 A, -di/dt = 3 A/µs		100	µC
I_{RM}			24	A
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.51	K/W
	per module		0.255	K/W
R_{thJK}	per diode; DC current		0.71	K/W
	per module		0.355	K/W
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

Features
- International standard package JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

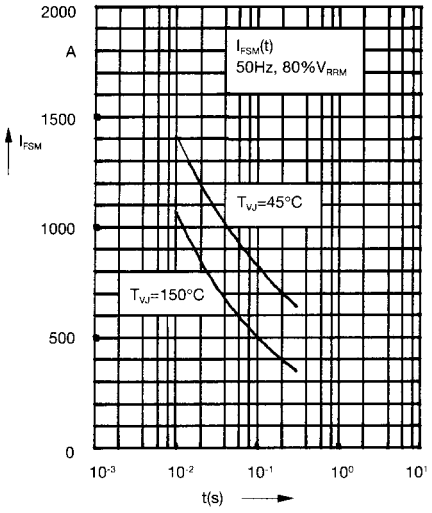


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

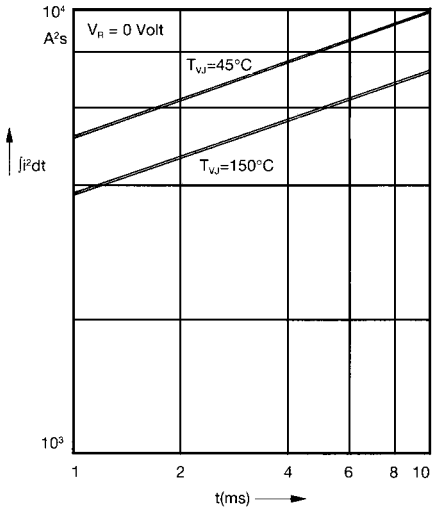


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

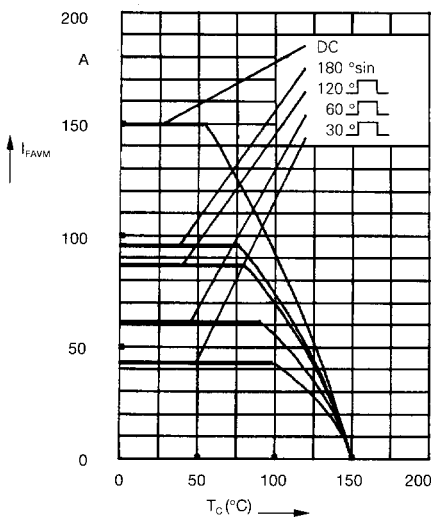


Fig. 2a Maximum forward current at case temperature

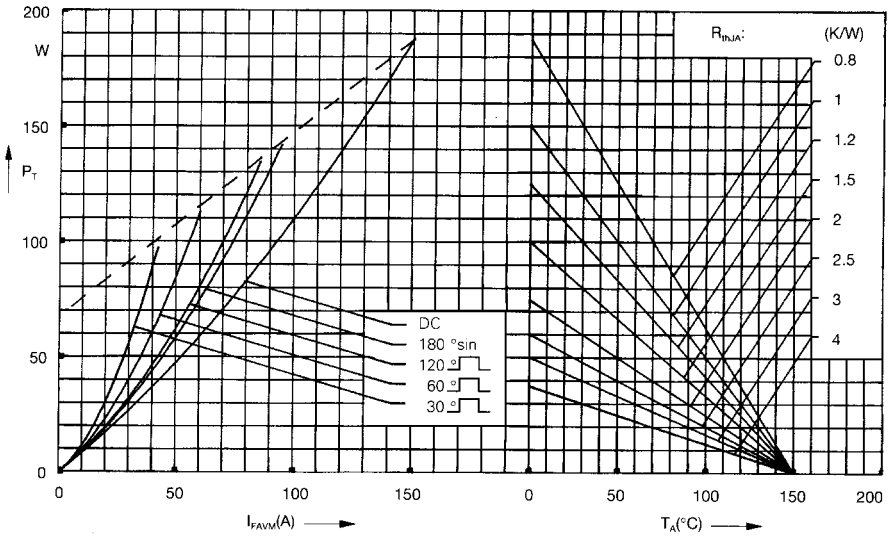


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

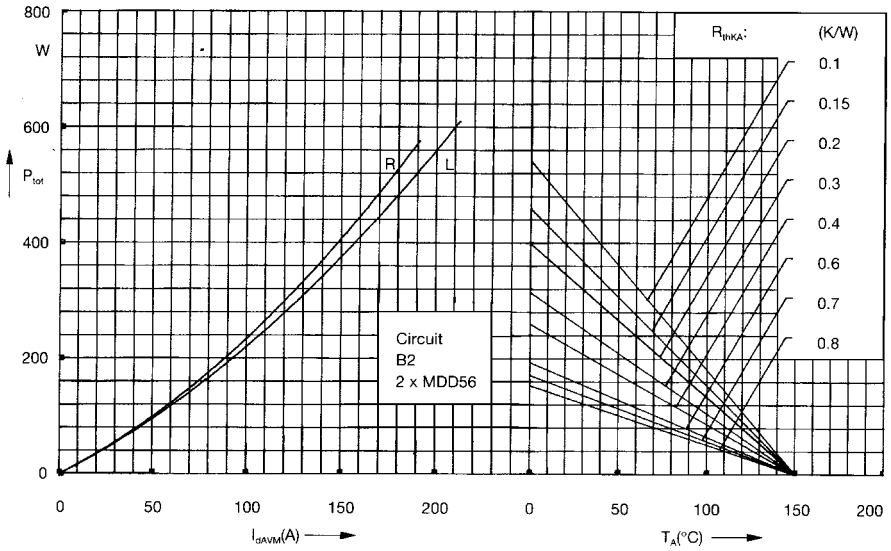


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

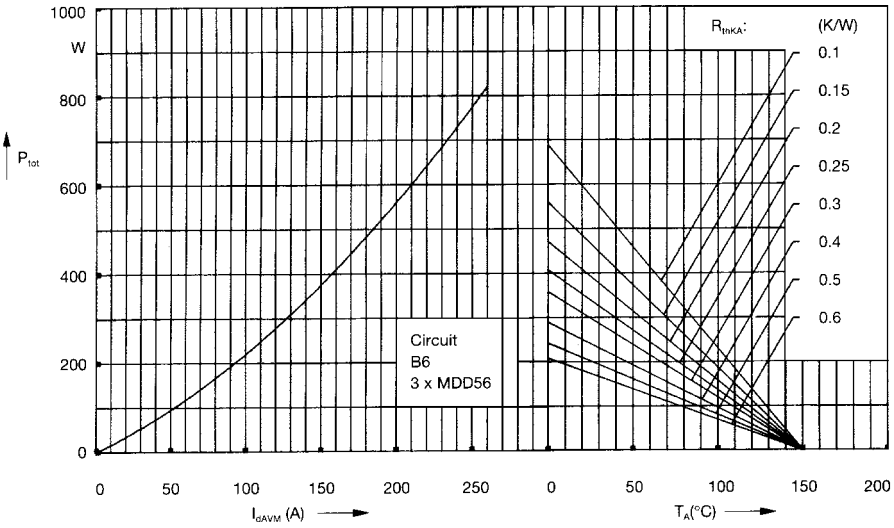


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

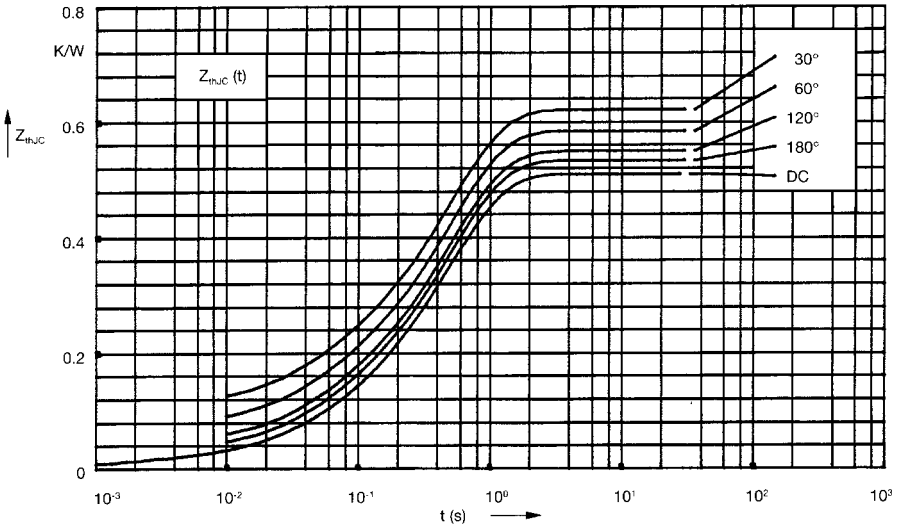


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.51
180°	0.53
120°	0.55
60°	0.58
30°	0.62

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0015
2	0.055	0.045
3	0.442	0.485

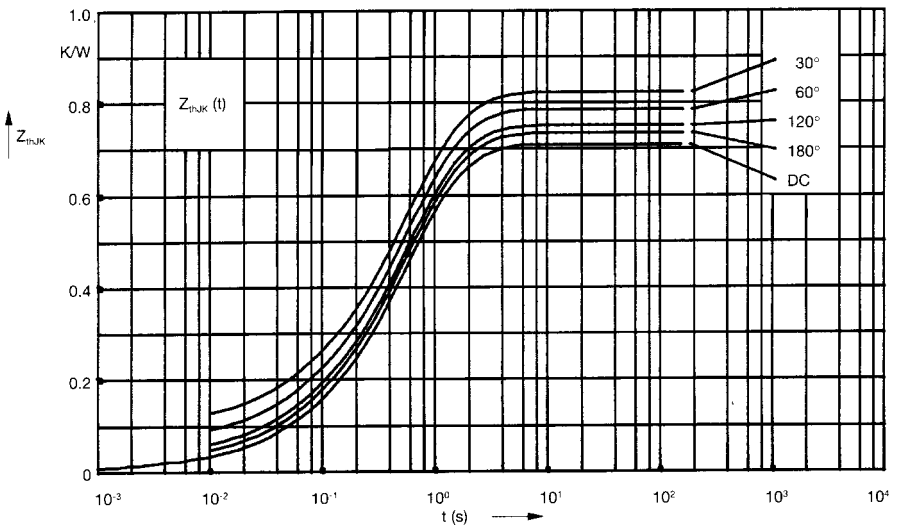


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.71
180°	0.73
120°	0.75
60°	0.78
30°	0.82

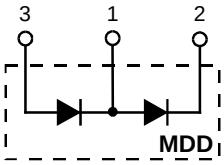
Constants for Z_{thJK} calculation:

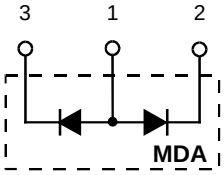
i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0015
2	0.055	0.045
3	0.442	0.485
4	0.2	1.25

Diode Modules

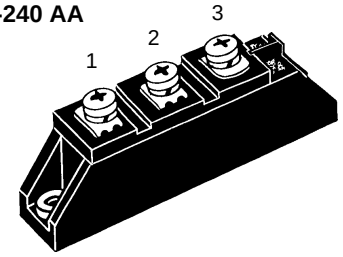
I_{FRMS} = 2x 180 A
I_{FAVM} = 2x 113 A
V_{RRM} = 800-1800 V

V_{RSM} V	V_{RRM} V	Type	
900	800	MDD 72-08N1 B	MDA 72-08N1 B
1300	1200	MDD 72-12N1 B	---
1500	1400	MDD 72-14N1 B	MDA 72-14N1 B
1700	1600	MDD 72-16N1 B	MDA 72-16N1 B
1900	1800	MDD 72-18N1 B	---





TO-240 AA



Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		180	A
I_{FAVM}	T_C = 92°C; 180° sine		113	A
	T_C = 100°C; 180° sine		99	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	1700	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1950	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	1540	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	1800	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	14 450	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	15 700	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	11 850	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	13 400	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-4/22-35	Nm/lb.in.
	Terminal connection torque (M5)		2.5-4/22-35	Nm/lb.in.
Weight	Typical including screws		90	g

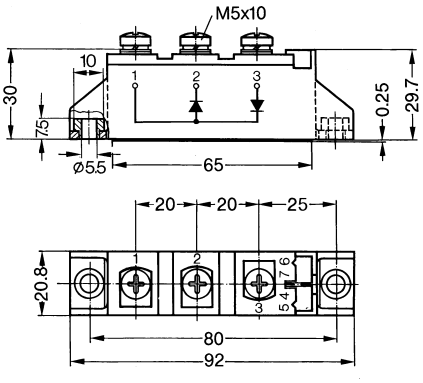
Symbol	Test Conditions		Characteristic Values	
I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		15	mA
V_F	I_F = 300 A; T_{VJ} = 25°C		1.6	V
V_{T0}	For power-loss calculations only		0.8	V
r_T	$T_{VJ} = T_{VJM}$		2.3	mΩ
Q_S	T_{VJ} = 125°C; I_F = 50 A, -di/dt = 3 A/µs		170	µC
I_{RM}			45	A
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.35	K/W
	per module		0.175	K/W
R_{thJK}	per diode; DC current		0.55	K/W
	per module		0.275	K/W
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

Features
- International standard package JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

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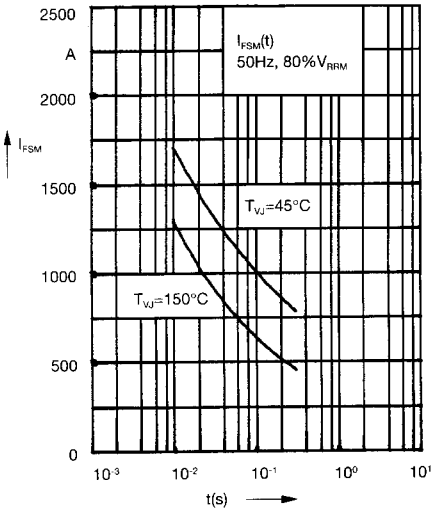


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

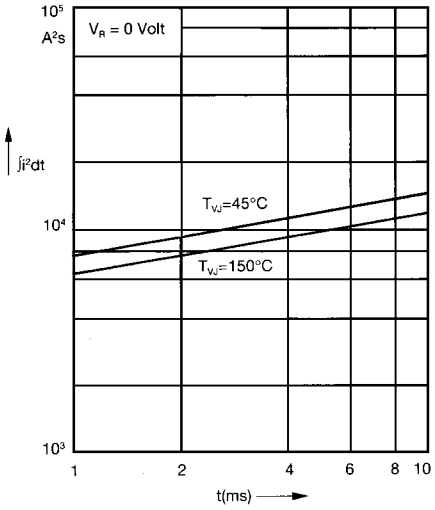


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

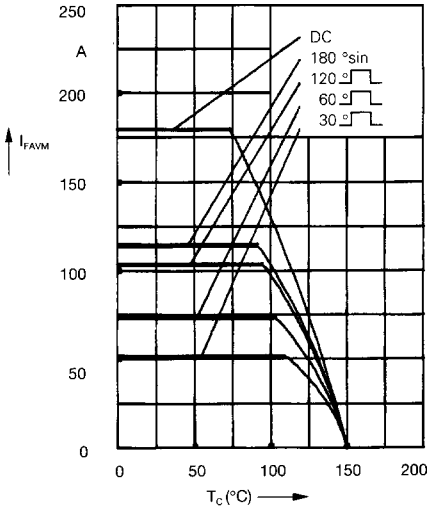


Fig. 2a Maximum forward current at case temperature

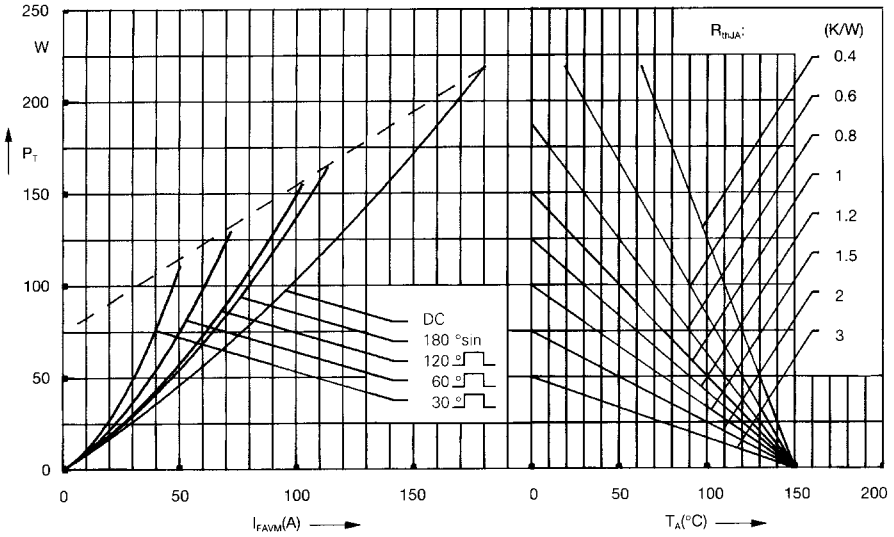


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

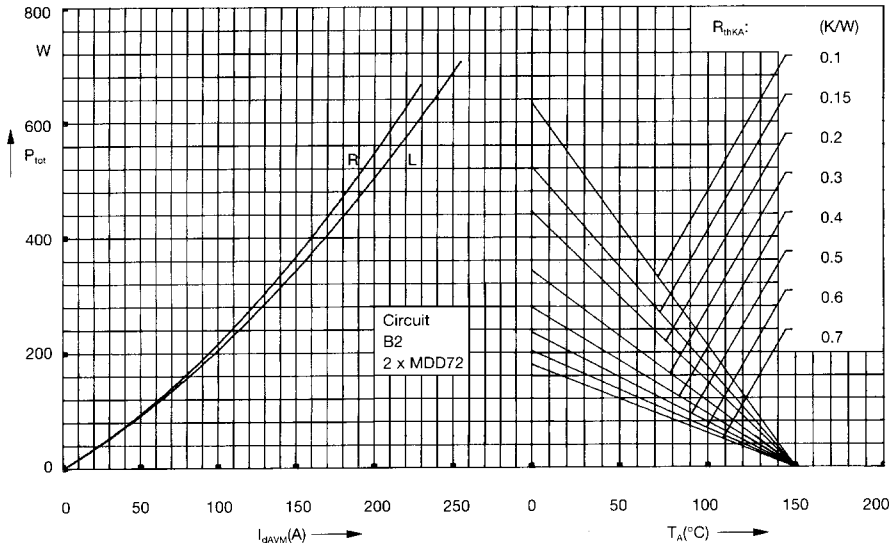


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

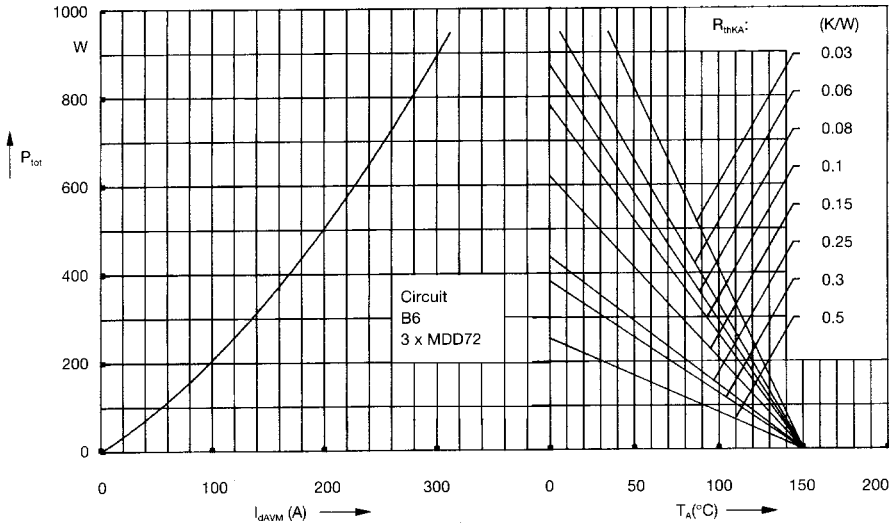


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

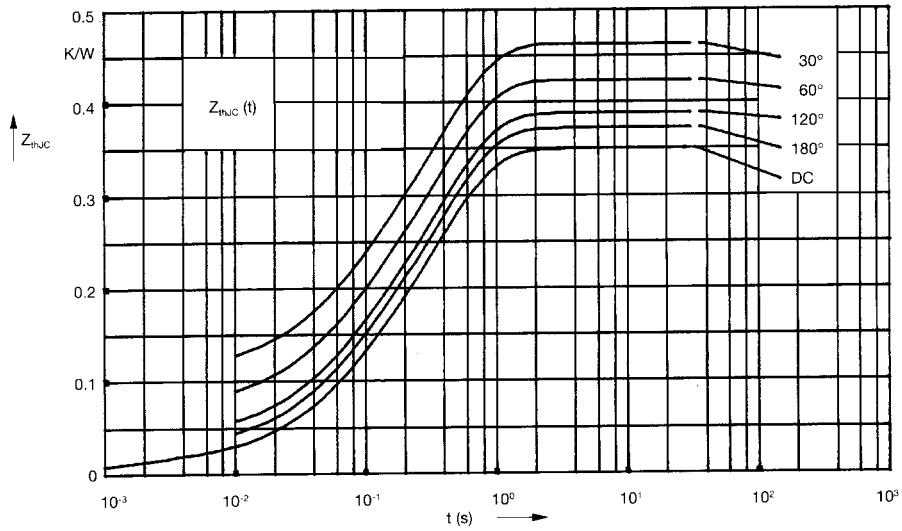


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.35
180°	0.37
120°	0.39
60°	0.43
30°	0.47

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0014
2	0.072	0.062
3	0.265	0.375

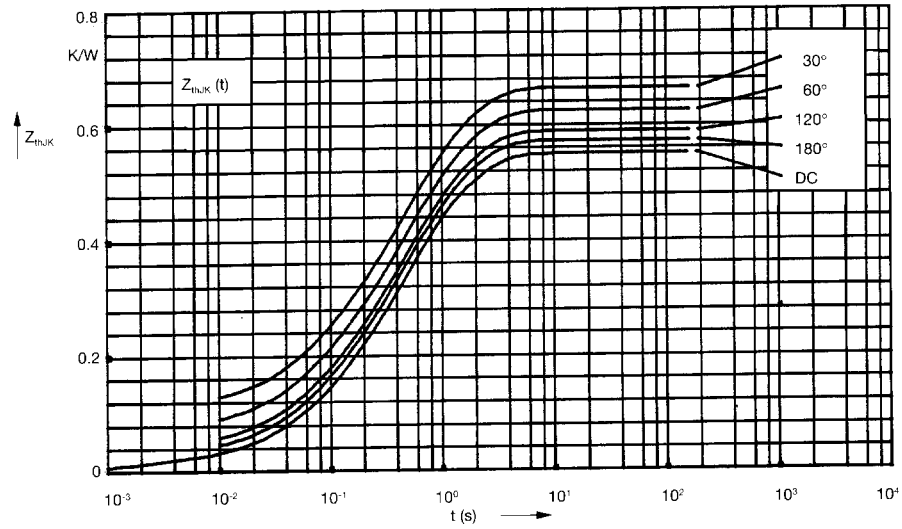


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.55
180°	0.57
120°	0.59
60°	0.63
30°	0.67

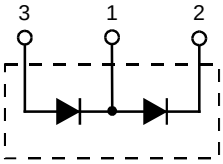
Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0014
2	0.072	0.062
3	0.265	0.375
4	0.2	1.32

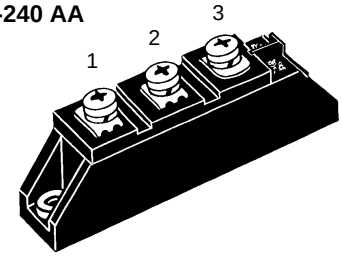
Diode Modules

I_{FRMS} = 2x 180 A
I_{FAVM} = 2x 120 A
V_{RRM} = 800-2200 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 95-08N1 B
1300	1200	MDD 95-12N1 B
1500	1400	MDD 95-14N1 B
1700	1600	MDD 95-16N1 B
1900	1800	MDD 95-18N1 B
2100	2000	MDD 95-20N1 B
2300	2200	MDD 95-22N1 B



TO-240 AA



Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		180	A
I_{FAVM}	T_C = 105°C; 180° sine		120	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	2800	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	3300	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	2500	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	2750	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	39 200	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	45 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	31 200	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	31 300	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-4/22-35	Nm/lb.in.
	Terminal connection torque (M5)		2.5-4/22-35	Nm/lb.in.
Weight	Typical including screws		90	g

Symbol	Test Conditions		Characteristic Values	
I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		15	mA
V_F	I_F = 300 A; T_{VJ} = 25°C		1.43	V
V_{T0}	For power-loss calculations only		0.75	V
r_T	$T_{VJ} = T_{VJM}$		1.95	mΩ
Q_S	T_{VJ} = 125°C; I_F = 50 A, -di/dt = 6 A/µs		170	µC
I_{RM}			45	A
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.26	K/W
	per module		0.13	K/W
R_{thJK}	per diode; DC current		0.46	K/W
	per module		0.23	K/W
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
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- Battery DC power supplies

Advantages
- Space and weight savings
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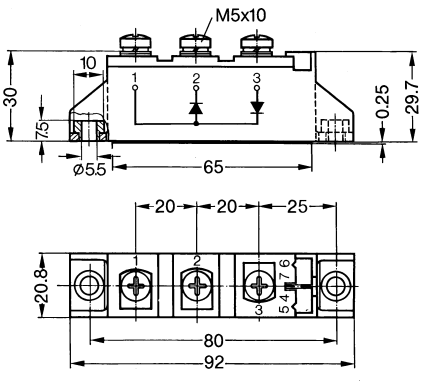
Dimensions in mm (1 mm = 0.0394")



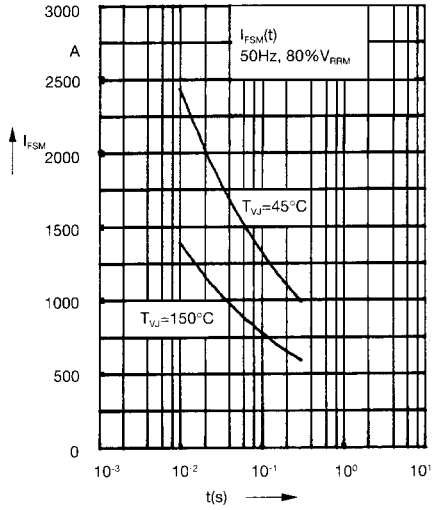


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

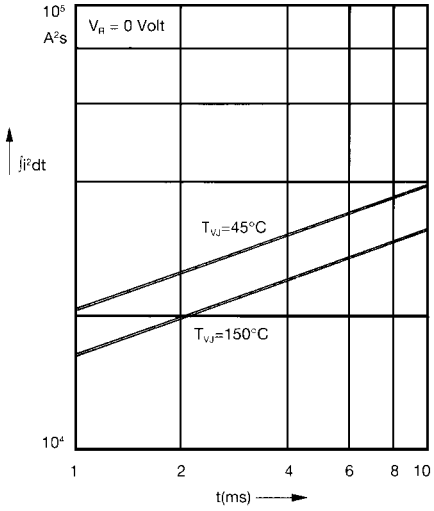


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

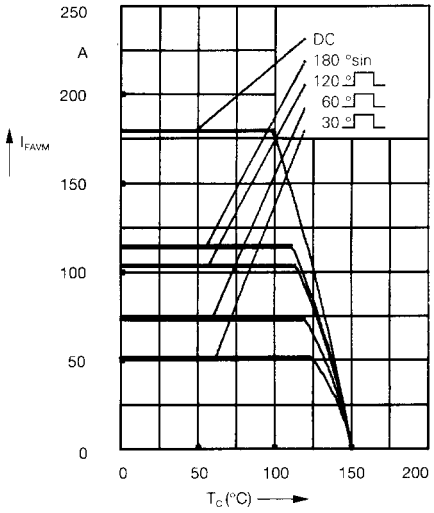


Fig. 2a Maximum forward current at case temperature

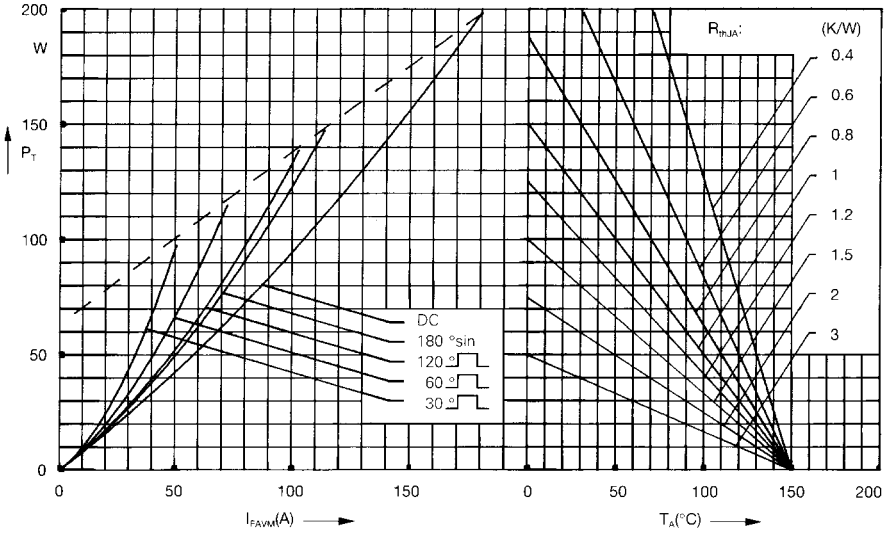


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

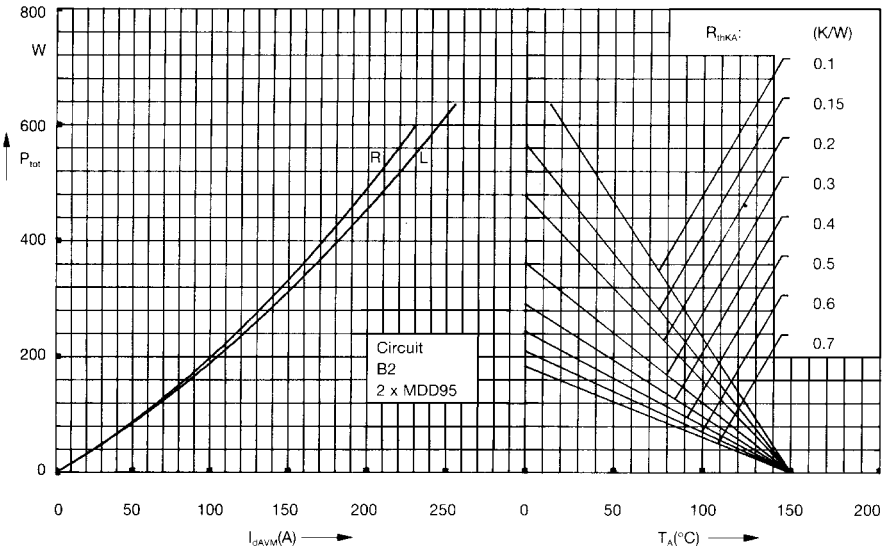


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

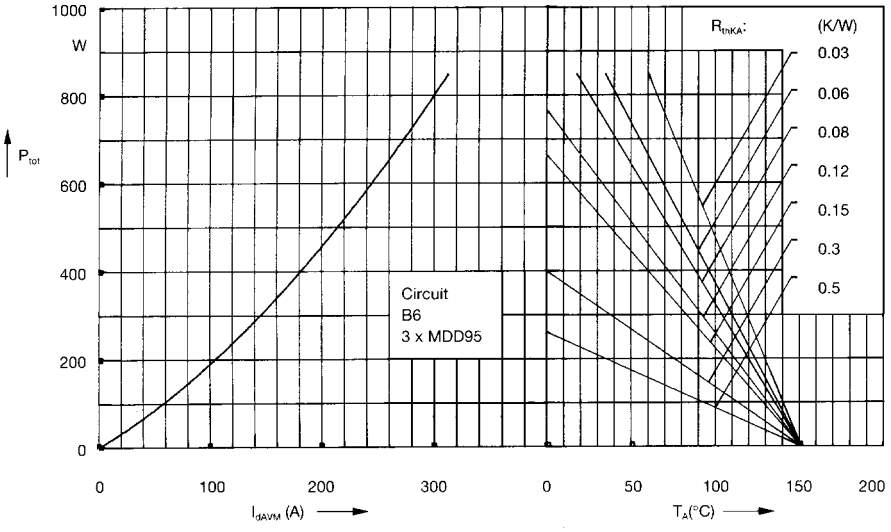


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

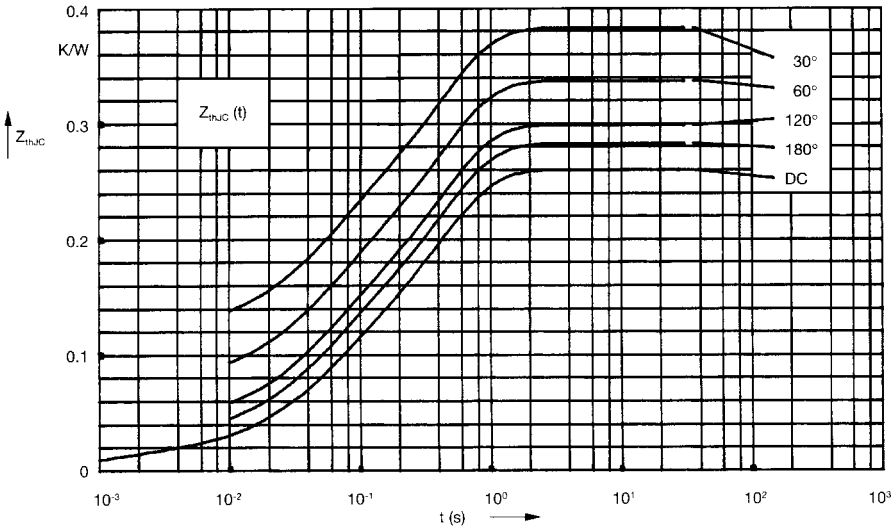


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.26
180°	0.28
120°	0.30
60°	0.34
30°	0.38

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0012
2	0.072	0.047
3	0.175	0.394

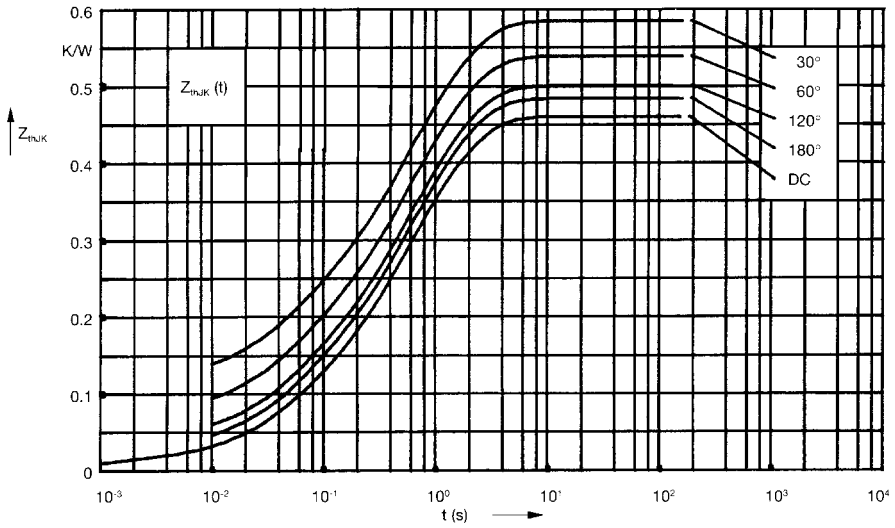


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.46
180°	0.48
120°	0.50
60°	0.54
30°	0.58

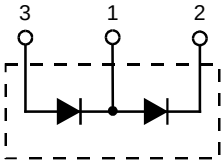
Constants for Z_{thJK} calculation:

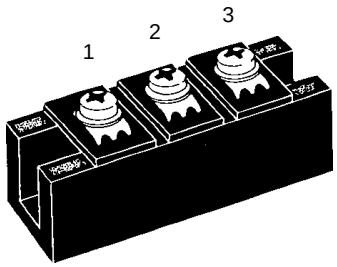
i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0012
2	0.072	0.047
3	0.175	0.394
4	0.2	1.32

High Power Diode Modules

I_{FRMS} = 2x 300 A
I_{FAVM} = 2x 165 A
V_{RRM} = 800-1800 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 142-08N1
1300	1200	MDD 142-12N1
1500	1400	MDD 142-14N1
1700	1600	MDD 142-16N1
1900	1800	MDD 142-18N1





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		300	A
I_{FAVM}	T_C = 100°C; 180° sine		165	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	4700	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	5000	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	4100	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	4300	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	110 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	104 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	84 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	77 000	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M6)		2.25-2.75/20-25	Nm/lb.in.
	Terminal connection torque (M6)		4.5-5.5/40-48	Nm/lb.in.
Weight	Typical including screws		120	g

Symbol	Test Conditions		Characteristic Values	
I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		20	mA
V_F	I_F = 300 A; T_{VJ} = 25°C		1.3	V
V_{T0}	For power-loss calculations only		0.8	V
r_T	$T_{VJ} = T_{VJM}$		1.3	mΩ
Q_S	T_{VJ} = 125°C; I_F = 300 A, -di/dt = 50 A/µs		550	µC
I_{RM}			235	A
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.21	K/W
	per module		0.105	K/W
R_{thJK}	per diode; DC current		0.31	K/W
	per module		0.155	K/W
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

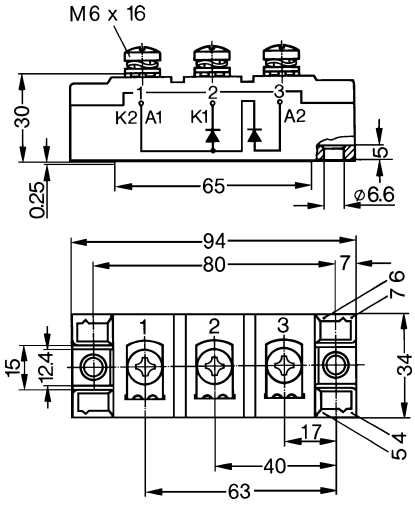
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



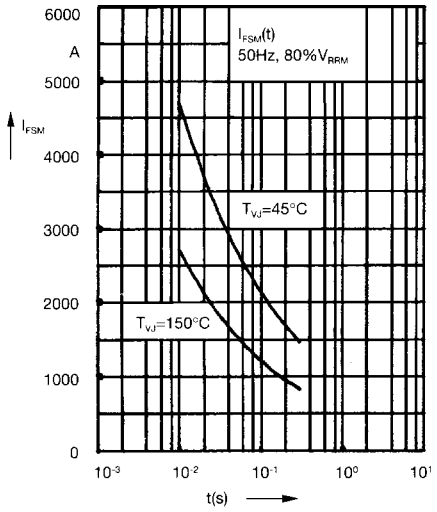


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

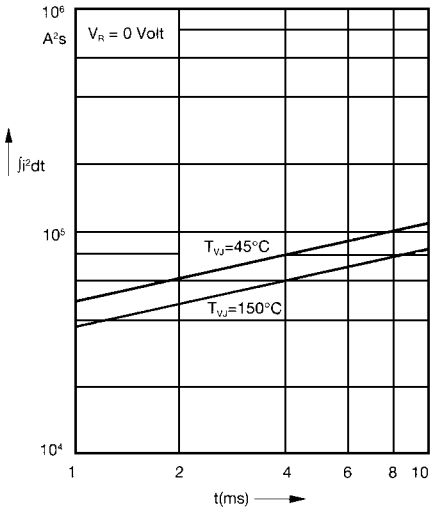


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

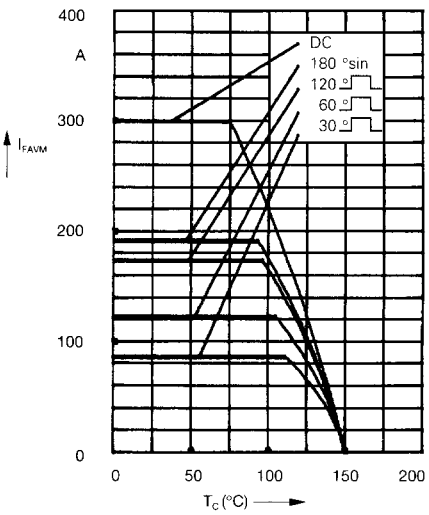


Fig. 2a Maximum forward current at case temperature

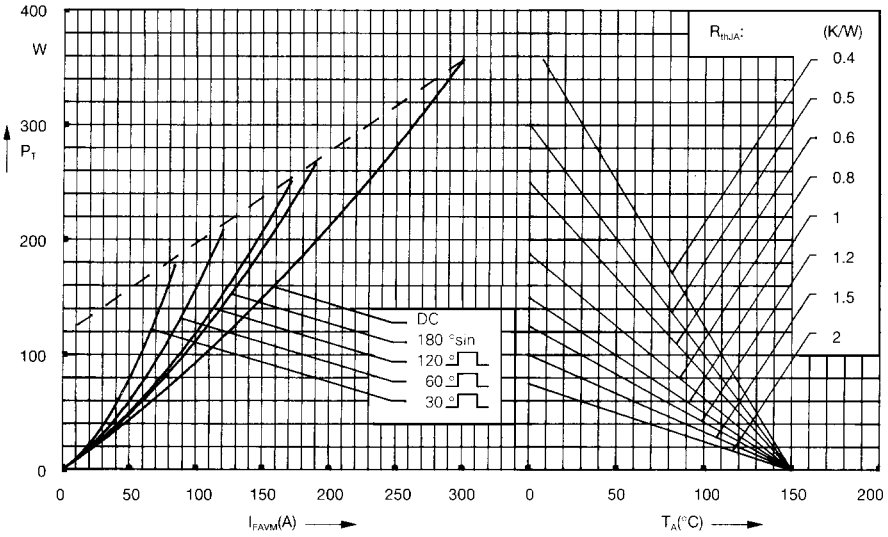


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

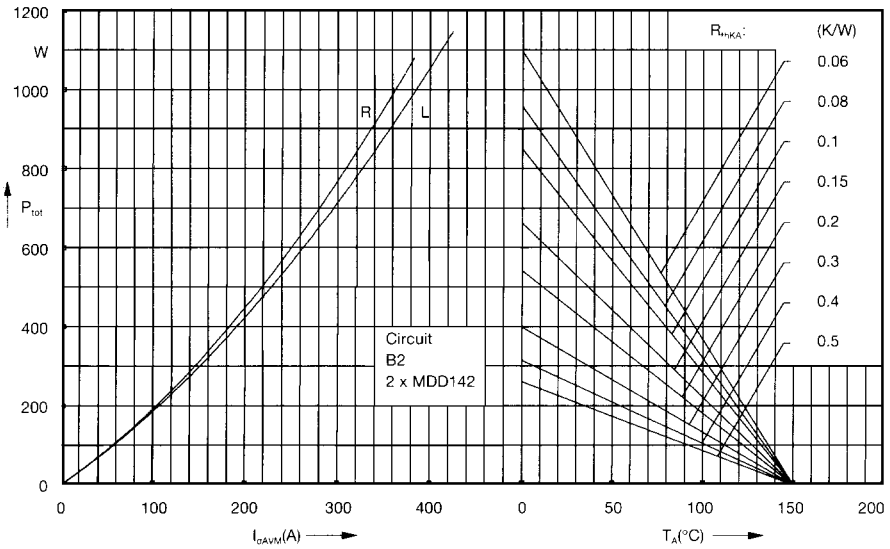


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

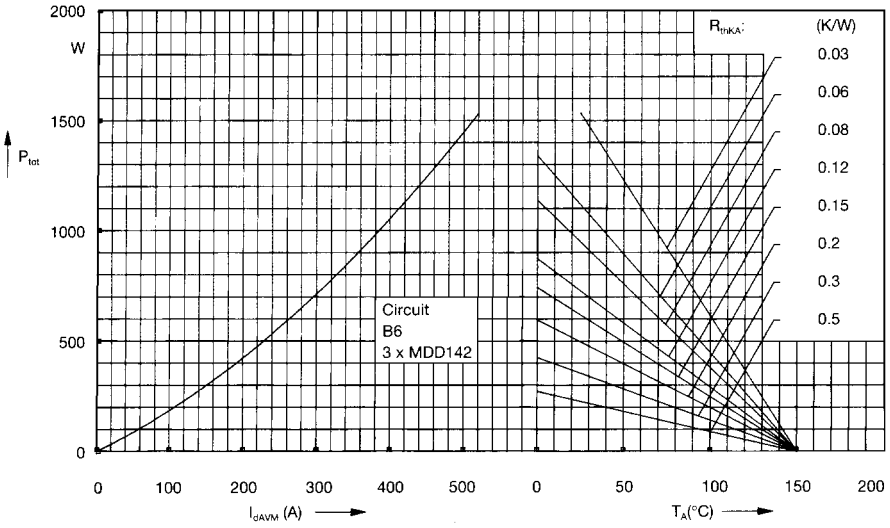


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

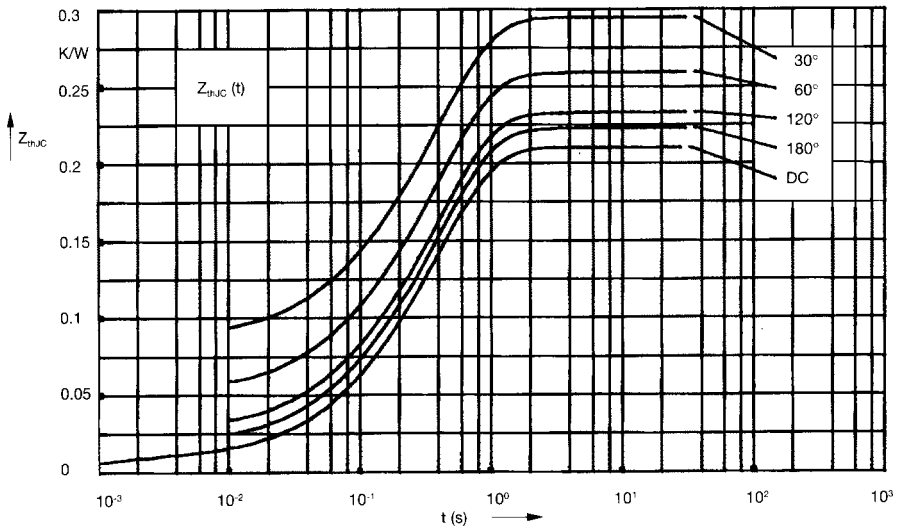


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.210
180°	0.223
120°	0.233
60°	0.260
30°	0.295

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0087	0.001
2	0.0163	0.065
3	0.185	0.4

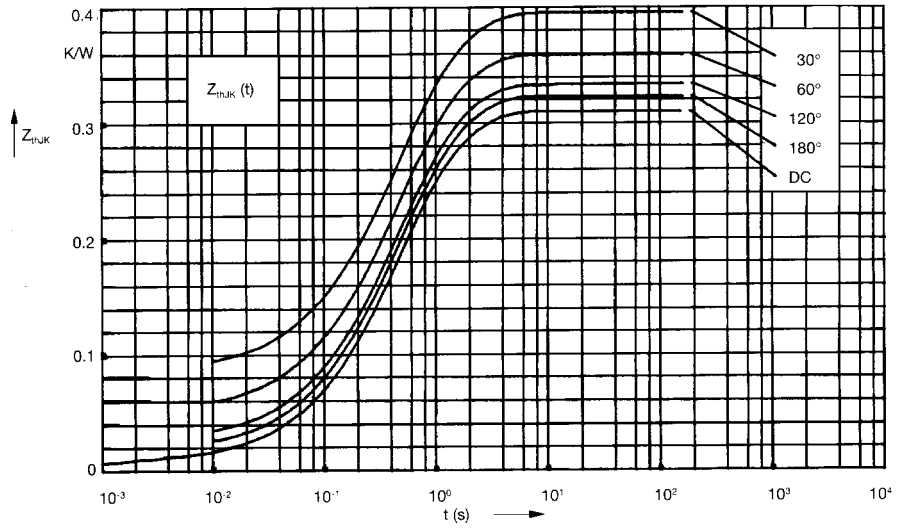


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.31
180°	0.323
120°	0.333
60°	0.360
30°	0.395

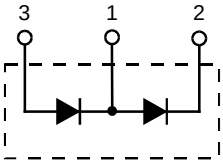
Constants for Z_{thJK} calculation:

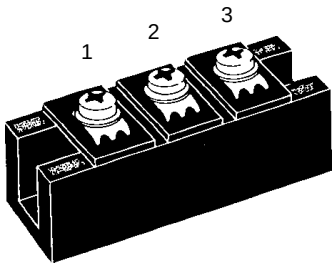
i	R_{thi} (K/W)	t_i (s)
1	0.0087	0.001
2	0.0163	0.065
3	0.185	0.4
4	0.1	1.29

High Power Diode Modules

I_{FRMS} = 2x 300 A
I_{FAVM} = 2x 190 A
V_{RRM} = 800-1800 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 172-08N1
1300	1200	MDD 172-12N1
1500	1400	MDD 172-14N1
1700	1600	MDD 172-16N1
1900	1800	MDD 172-18N1





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		300	A
I_{FAVM}	T_C = 100°C; 180° sine		190	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	6600	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	7290	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	5600	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	6200	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	218 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	221 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	157 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	160 000	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M6)		2.25-2.75/20-25	Nm/lb.in.
	Terminal connection torque (M6)		4.5-5.5/40-48	Nm/lb.in.
Weight	Typical including screws		120	g

Symbol	Test Conditions		Characteristic Values	
I_R	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		20	mA
V_F	I_F = 300 A; T_{VJ} = 25°C		1.15	V
V_{T0}	For power-loss calculations only		0.8	V
r_T	$T_{VJ} = T_{VJM}$		0.8	mΩ
Q_S	T_{VJ} = 125°C; I_F = 300 A, -di/dt = 50 A/µs		550	µC
I_{RM}			235	A
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.21	K/W
	per module		0.105	K/W
R_{thJK}	per diode; DC current		0.31	K/W
	per module		0.155	K/W
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

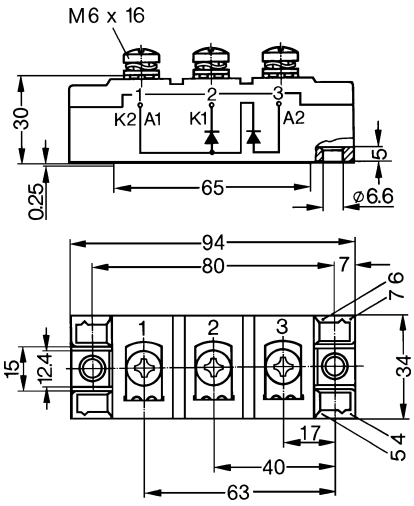
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



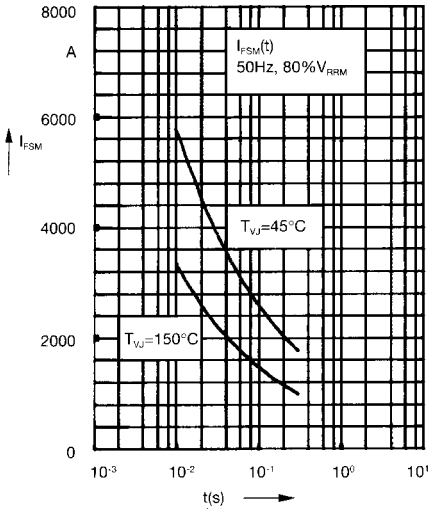


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

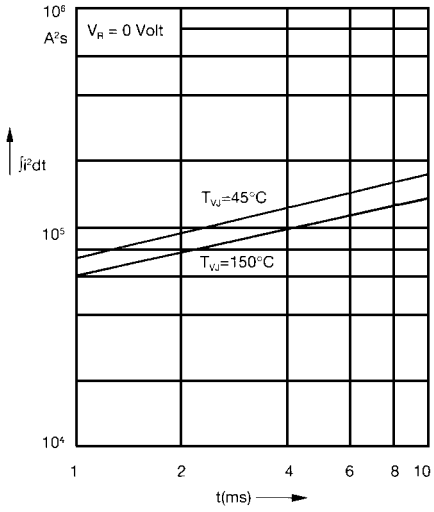


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

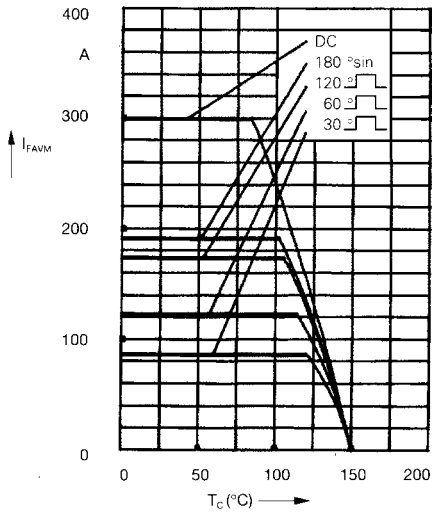


Fig. 2a Maximum forward current at case temperature

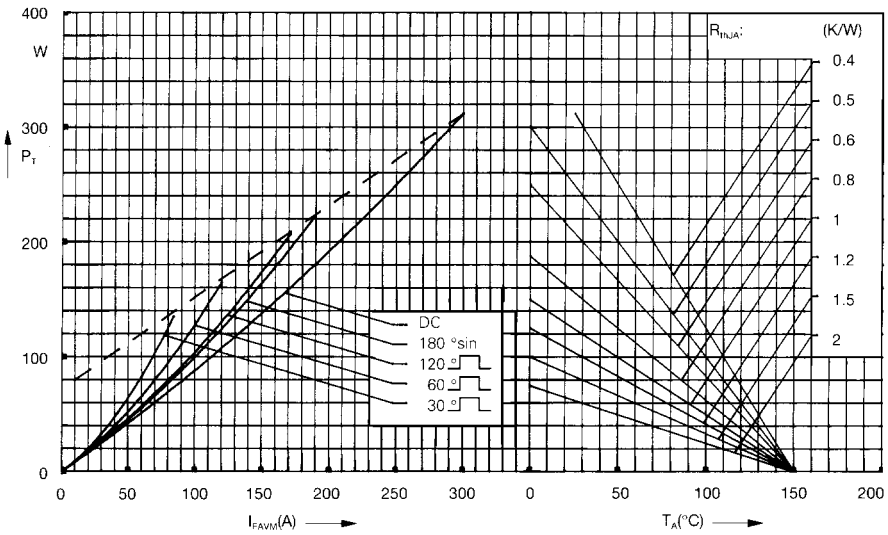


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

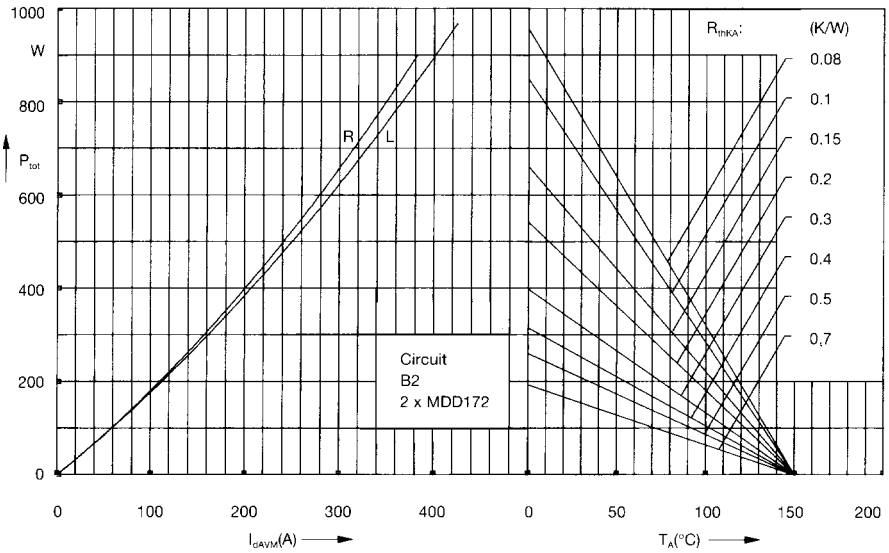


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

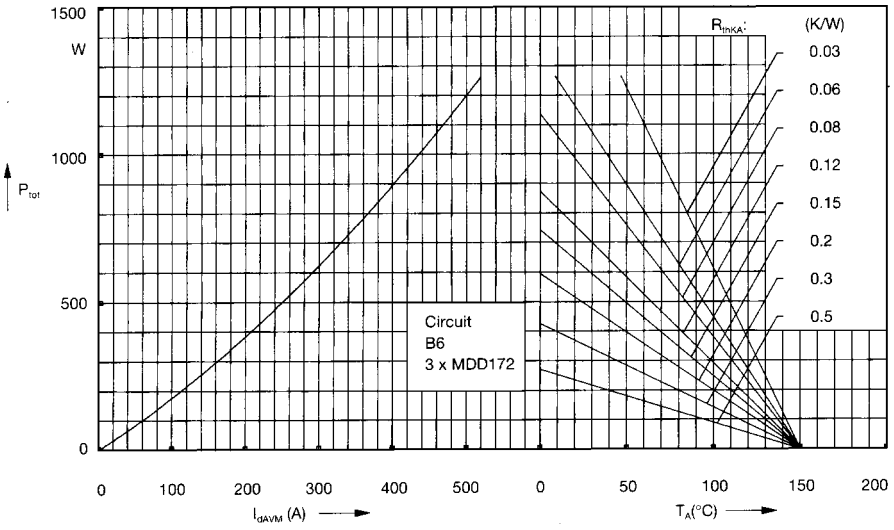


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

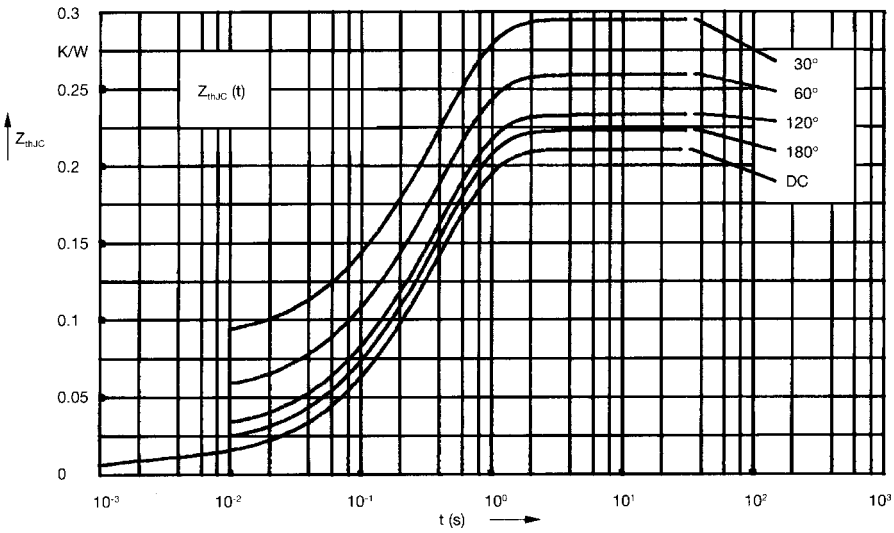


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.210
180°	0.223
120°	0.233
60°	0.260
30°	0.295

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0087	0.001
2	0.0163	0.065
3	0.185	0.4

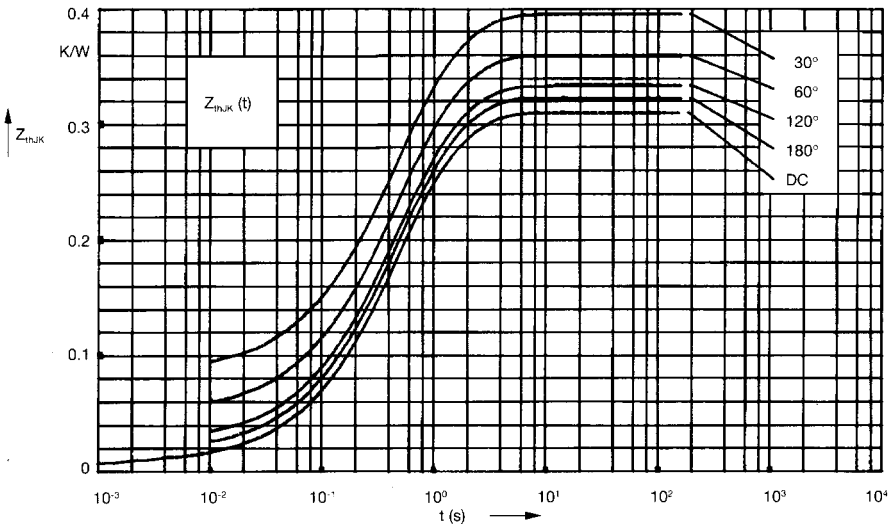


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.31
180°	0.323
120°	0.333
60°	0.360
30°	0.395

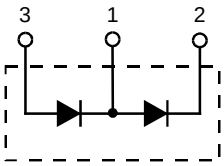
Constants for Z_{thJK} calculation:

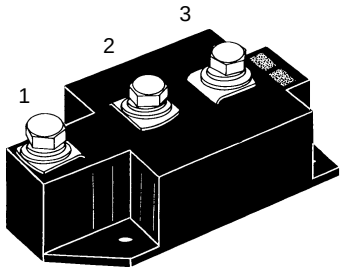
i	R_{thi} (K/W)	t_i (s)
1	0.0087	0.001
2	0.0163	0.065
3	0.185	0.4
4	0.1	1.29

High Power Diode Modules

I_{FRMS} = 2x 450 A
I_{FAVM} = 2x 270 A
V_{RRM} = 800-1600 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 220-08N1
1300	1200	MDD 220-12N1
1500	1400	MDD 220-14N1
1700	1600	MDD 220-16N1





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		450	A
I_{FAVM}	T_C = 100°C; 180° sine		270	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	8500	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	9000	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	7500	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	8000	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	360 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	340 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	280 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	260 000	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-5/22-44	Nm/lb.in.
	Terminal connection torque (M8)		12-15/106-132	Nm/lb.in.
Weight	Typical including screws		320	g

Symbol	Test Conditions		Characteristic Values	
I_{RRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		40	mA
V_F	I_F = 600 A; T_{VJ} = 25°C		1.4	V
V_{T0}	For power-loss calculations only		0.75	V
r_T	$T_{VJ} = T_{VJM}$		0.9	mΩ
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.129	K/W
	per module		0.065	K/W
R_{thJK}	per diode; DC current		0.169	K/W
	per module		0.0845	K/W
Q_S	T_{VJ} = 125°C, I_F = 400 A; -di/dt = 50 A/µs		760	µC
I_{RM}			275	A
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

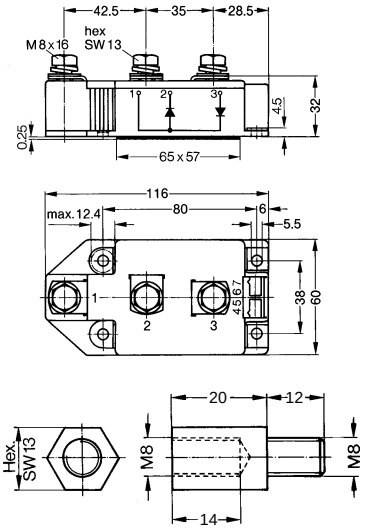
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Threaded spacer for higher Anode/Cathode construction: Type **ZY 250**, material brass

936

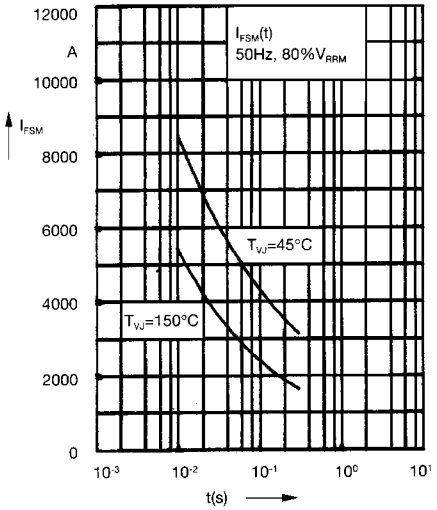


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

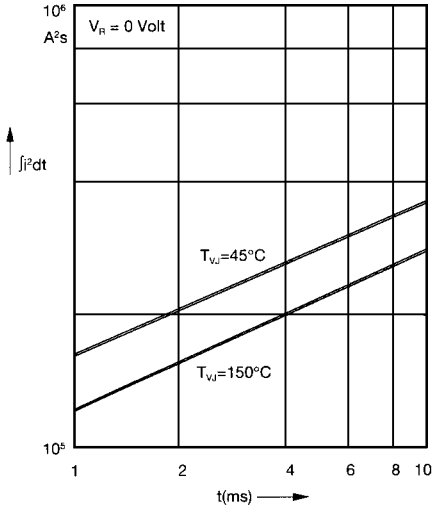


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

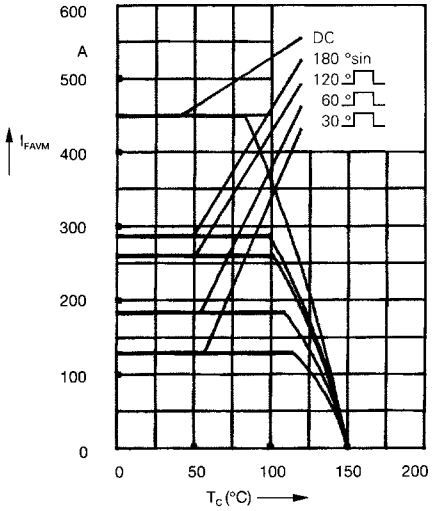


Fig. 2a Maximum forward current at case temperature

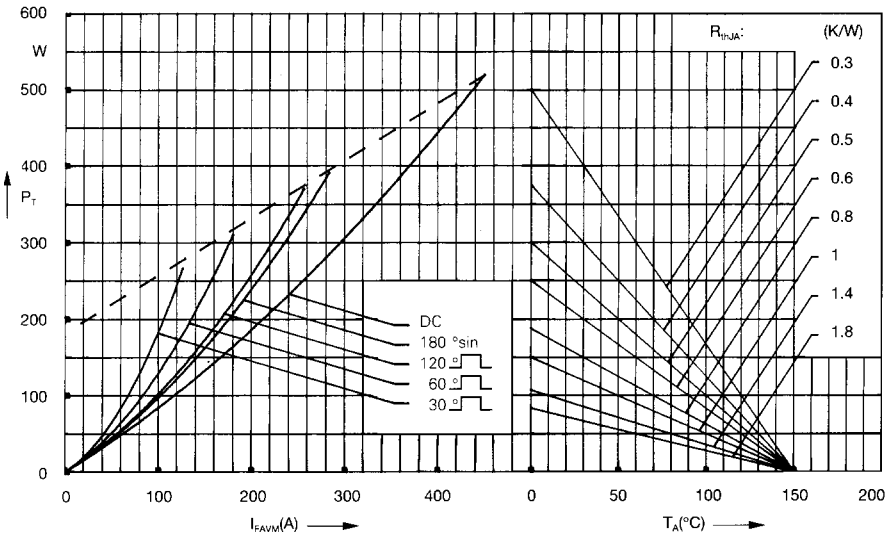


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

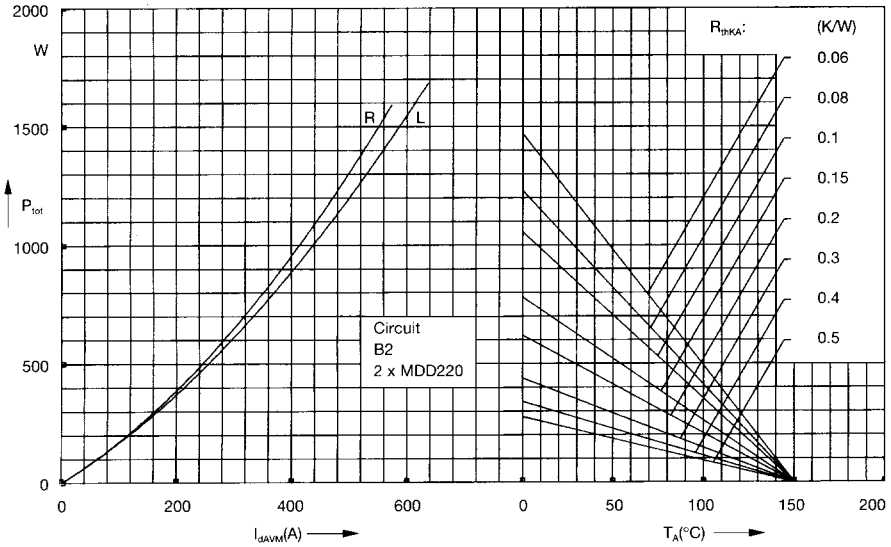


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

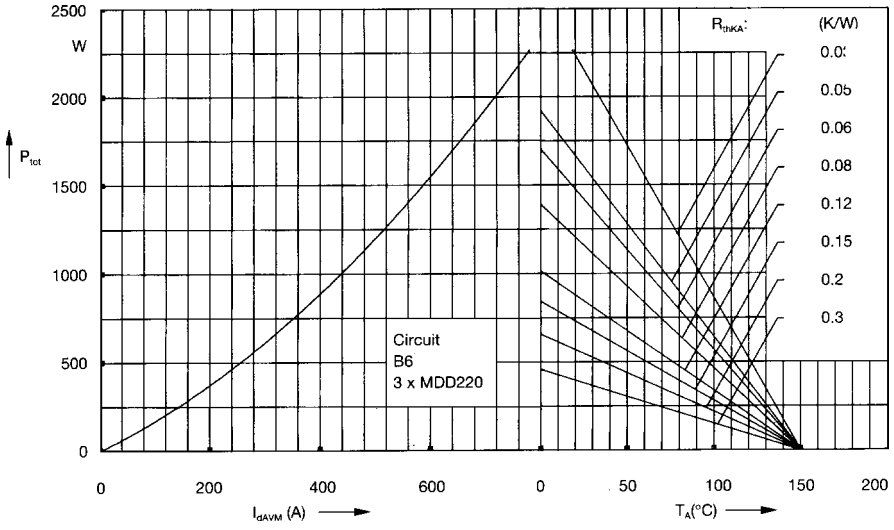


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

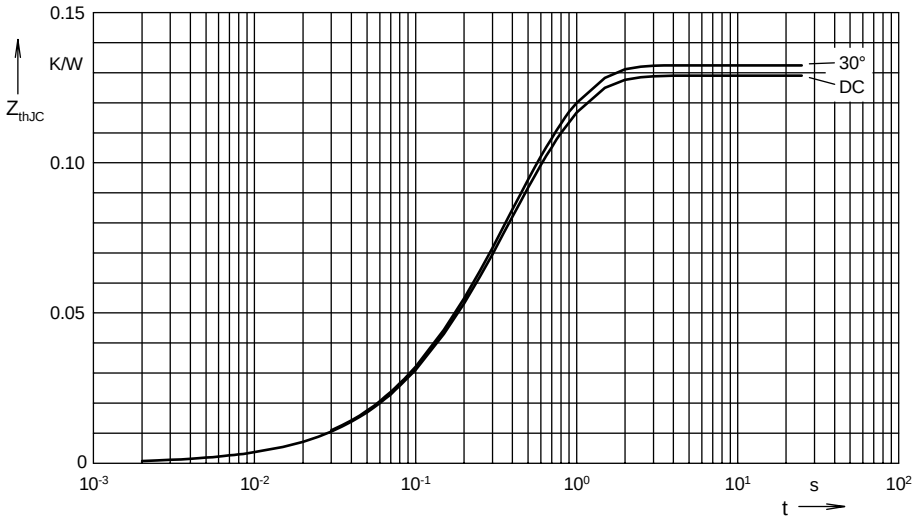


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.129
180°	0.131
120°	0.132
60°	0.132
30°	0.133

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456

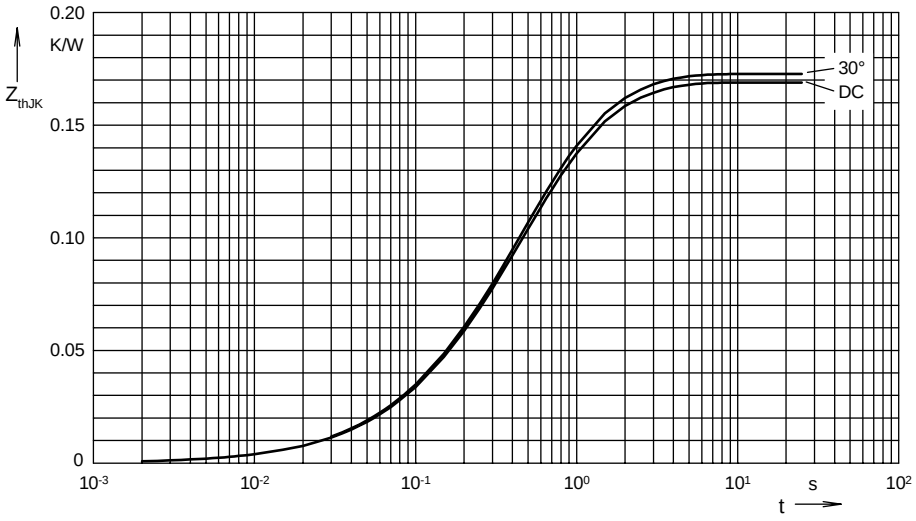


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.169
180°	0.171
120°	0.172
60°	0.172
30°	0.173

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456
4	0.04	1.36

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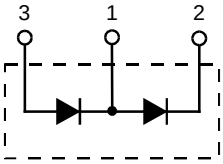
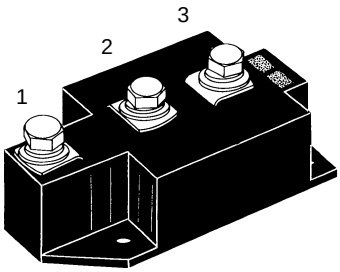
High Power Diode Modules

I_{FRMS} = 2x 450 A
I_{FAVM} = 2x 290 A
V_{RRM} = 800-1600 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 250-08N1
1300	1200	MDD 250-12N1
1500	1400	MDD 250-14N1
1700	1600	MDD 250-16N1





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		450	A
I_{FAVM}	T_C = 100°C; 180° sine		290	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	11 000	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	11 700	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	9000	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	9600	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	605 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	560 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	405 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	380 000	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-5/22-44	Nm/lb.in.
	Terminal connection torque (M8)		12-15/106-132	Nm/lb.in.
Weight	Typical including screws		320	g

Symbol	Test Conditions		Characteristic Values	
I_{RRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		40	mA
V_F	I_F = 600 A; T_{VJ} = 25°C		1.3	V
V_{T0}	For power-loss calculations only		0.75	V
r_T	$T_{VJ} = T_{VJM}$		0.75	mΩ
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.129	K/W
	per module		0.065	K/W
R_{thJK}	per diode; DC current		0.169	K/W
	per module		0.0845	K/W
Q_S	T_{VJ} = 125°C, I_F = 400 A; -di/dt = 50 A/µs		760	µC
I_{RM}			275	A
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

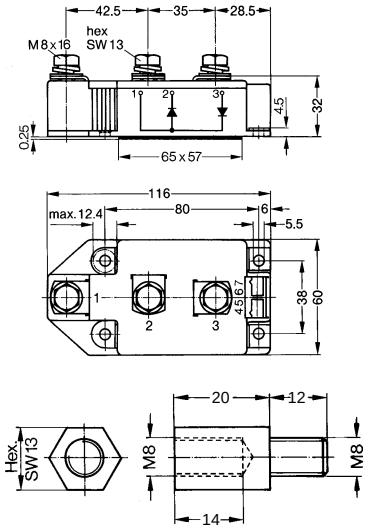
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Threaded spacer for higher Anode/Cathode construction: Type **ZY 250**, material brass

936

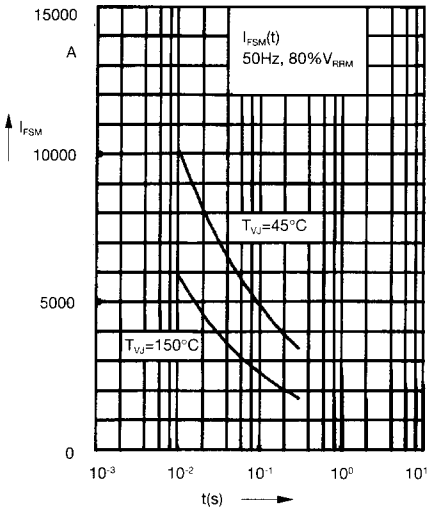


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

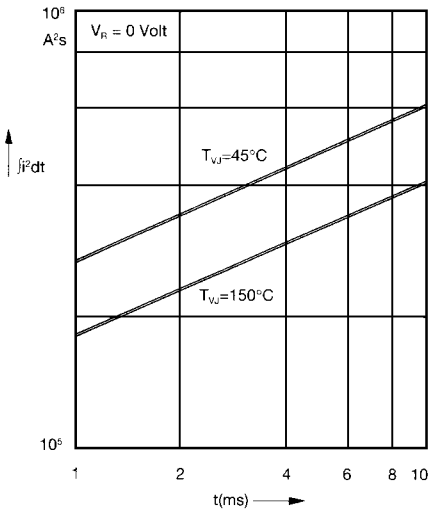


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

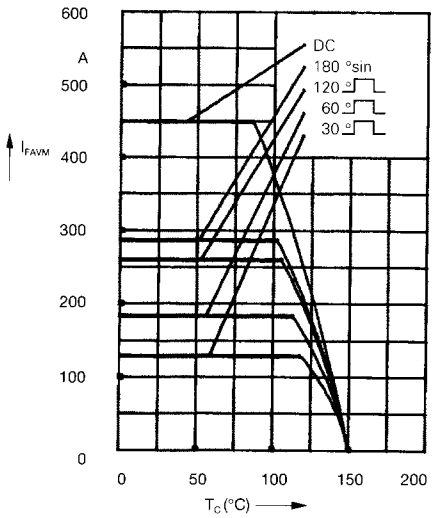


Fig. 2a Maximum forward current at case temperature

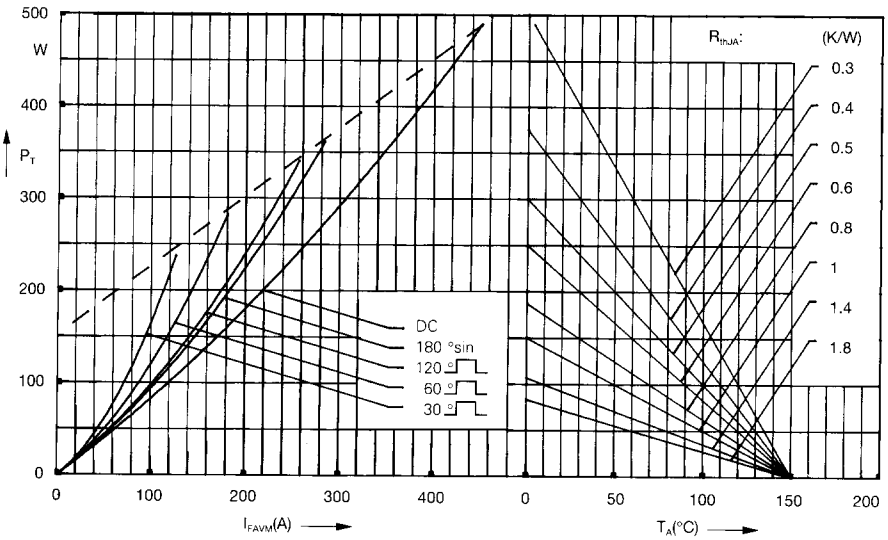


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

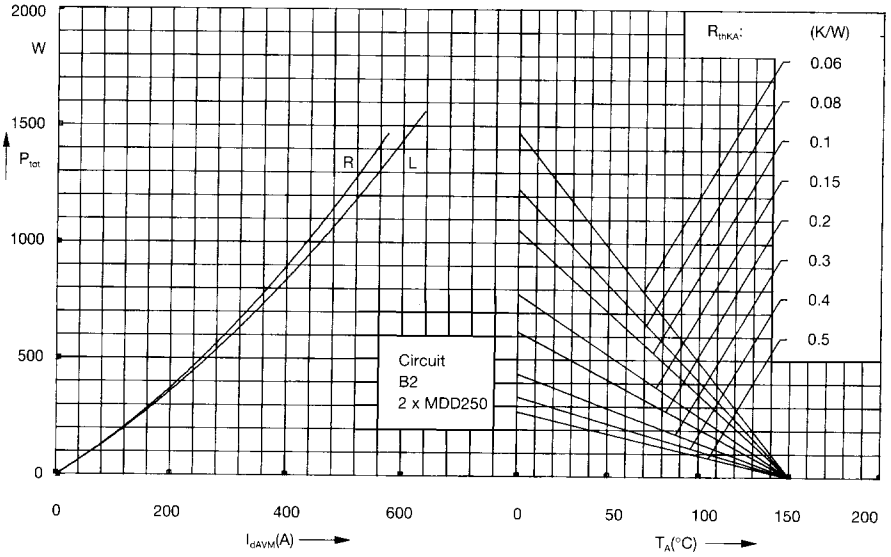


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

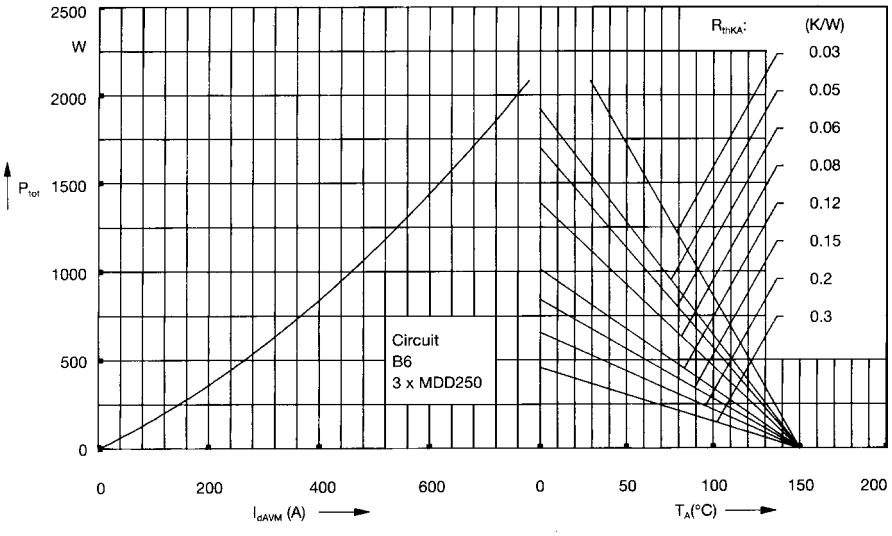


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

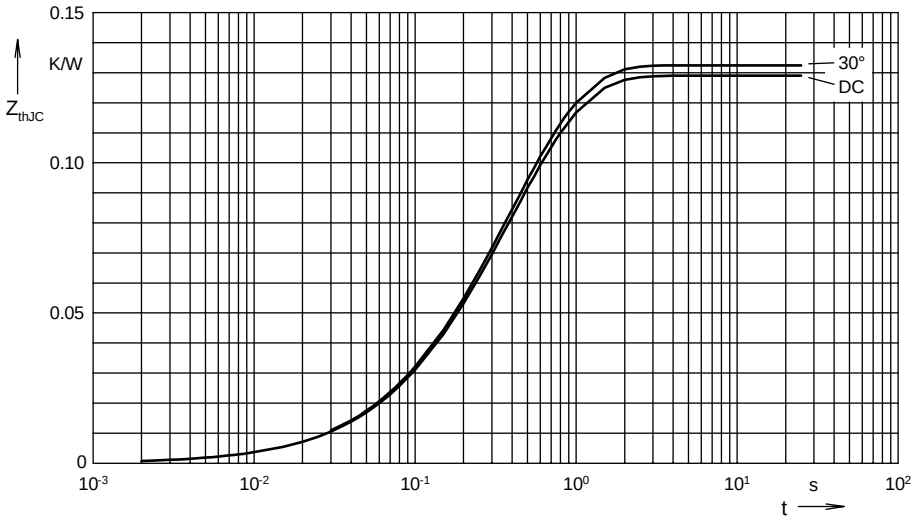


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.129
180°	0.131
120°	0.132
60°	0.132
30°	0.133

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456

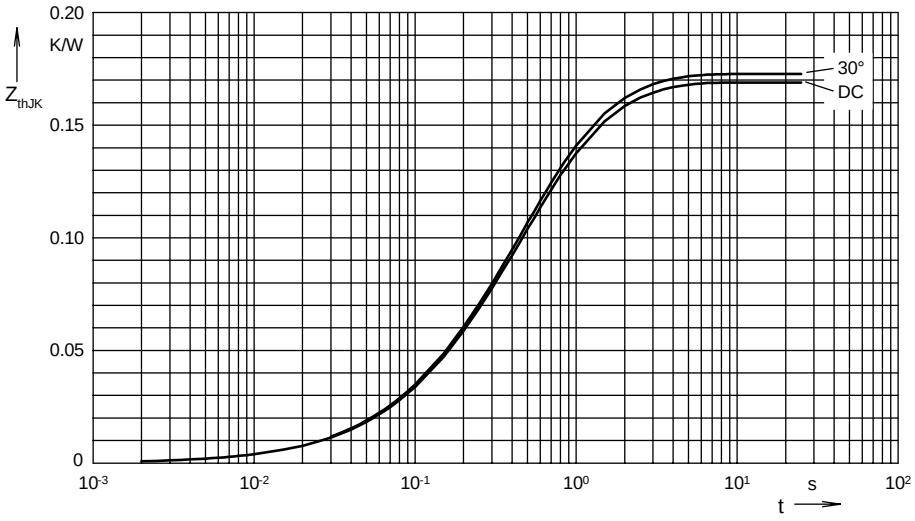


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.169
180°	0.171
120°	0.172
60°	0.172
30°	0.173

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456
4	0.04	1.36

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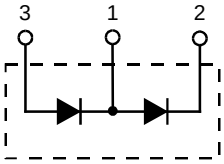
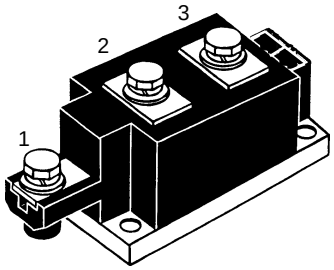
High Power Diode Modules

I_{FRMS} = 2x 450 A
I_{FAVM} = 2x 270 A
V_{RRM} = 1200-2200 V

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	1200	MDD 255-12N1
1500	1400	MDD 255-14N1
1700	1600	MDD 255-16N1
1900	1800	MDD 255-18N1
2100	2000	MDD 255-20N1
2300	2200	MDD 255-22N1





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		450	A
I_{FAVM}	T_C = 100°C; 180° sine		270	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz)	9500	A
	V_R = 0	t = 8.3 ms (60 Hz)	10200	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	8400	A
	V_R = 0	t = 8.3 ms (60 Hz)	9000	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz)	451 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	437 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	353 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	340 000	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M6)		4.5-7/40-62	Nm/lb.in.
	Terminal connection torque (M8)		11-13/97-115	Nm/lb.in.
Weight	Typical including screws		750	g

Symbol	Test Conditions		Characteristic Values	
I_{RRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		30	mA
V_F	I_F = 600 A; T_{VJ} = 25°C		1.4	V
V_{T0}	For power-loss calculations only		0.8	V
r_T	$T_{VJ} = T_{VJM}$		0.6	mΩ
R_{thJC}	per diode; DC current	other values see MCC 255	0.140	K/W
	per module		0.07	K/W
R_{thJK}	per diode; DC current		0.18	K/W
	per module		0.09	K/W
Q_S	T_{VJ} = 125°C; I_F = 400 A; -di/dt = 50 A/µs		700	µC
I_{RM}			260	A
d_S	Creeping distance on surface		12.7	mm
d_A	Creepage distance in air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

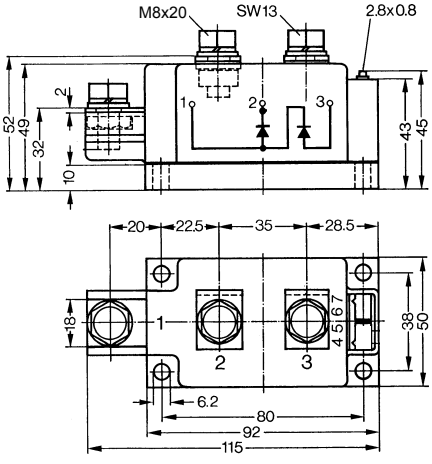
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package
- Direct copper bonded Al_2O_3-ceramic with copper base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



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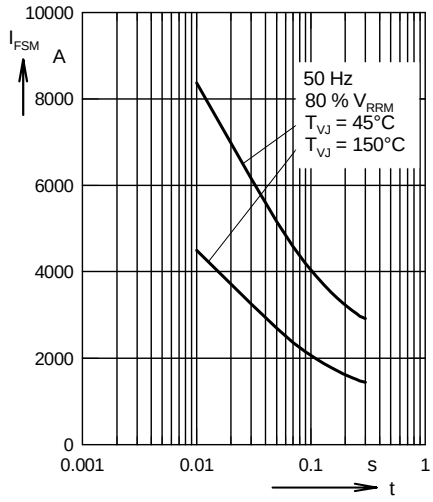

Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

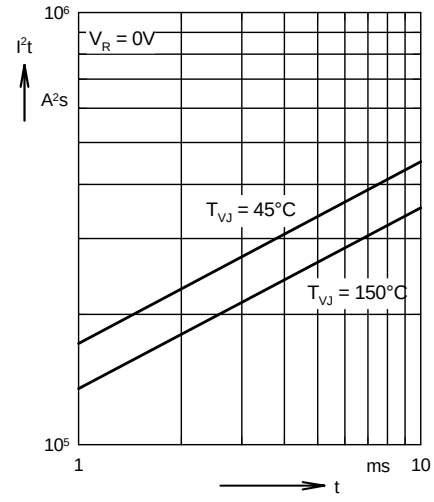

Fig. 2 I^2t versus time (1-10 ms)

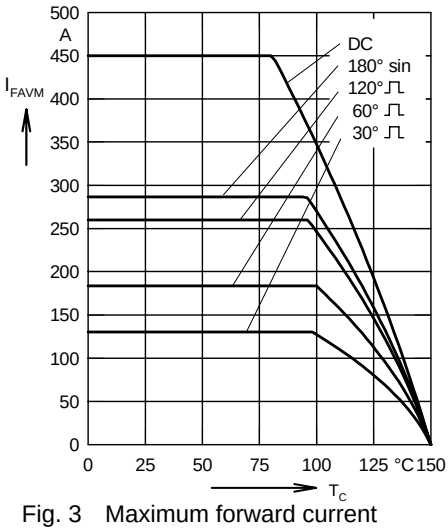

Fig. 3 Maximum forward current at case temperature

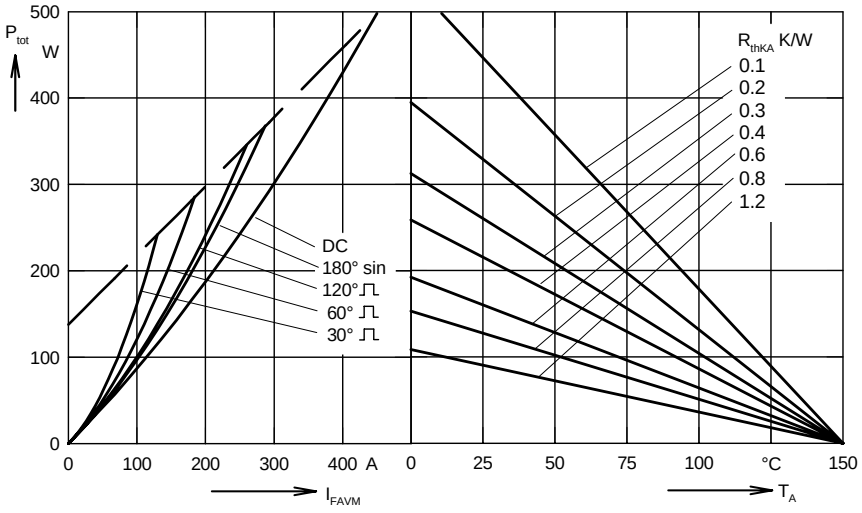

Fig. 4 Power dissipation versus forward current and ambient temperature (per diode)

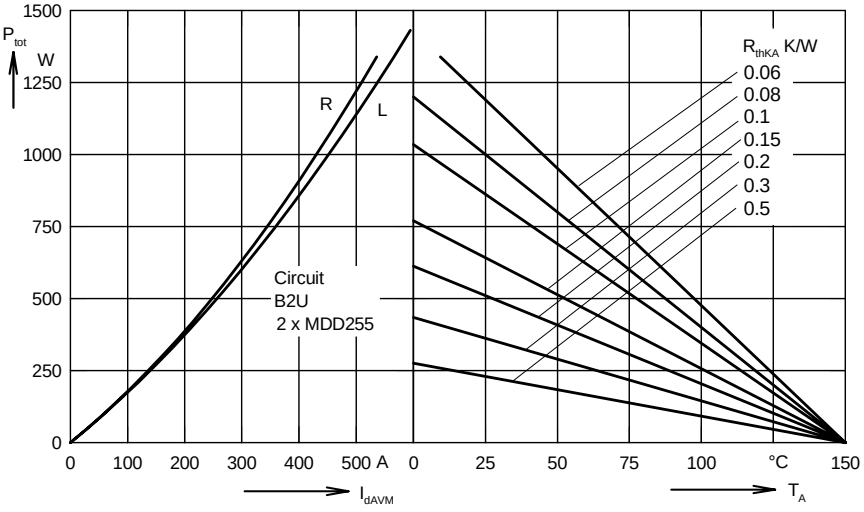

Fig. 5 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

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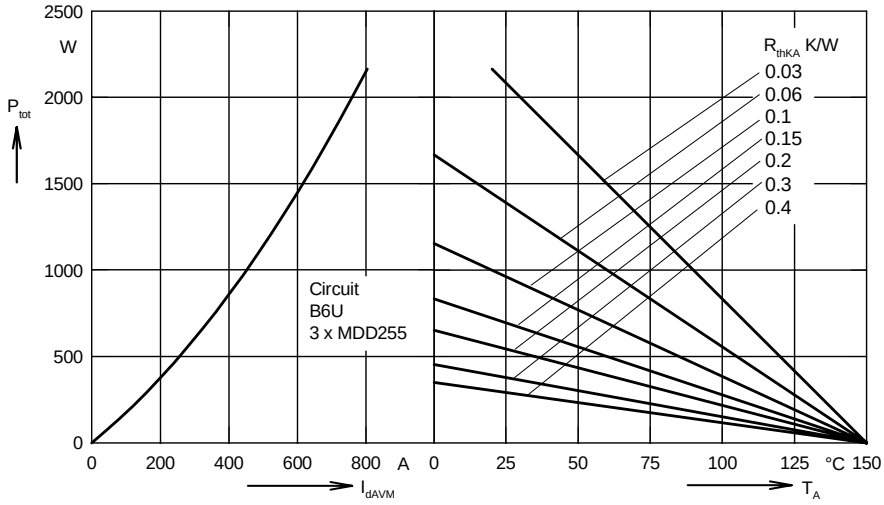

Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

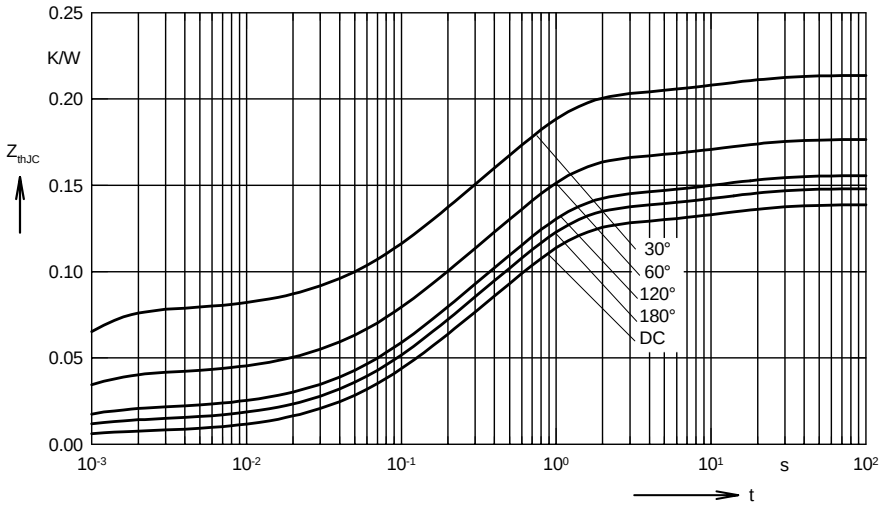

Fig. 7 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.139
180°	0.148
120°	0.156
60°	0.176
30°	0.214

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0066	0.00054
2	0.0358	0.098
3	0.0831	0.54
4	0.0129	12

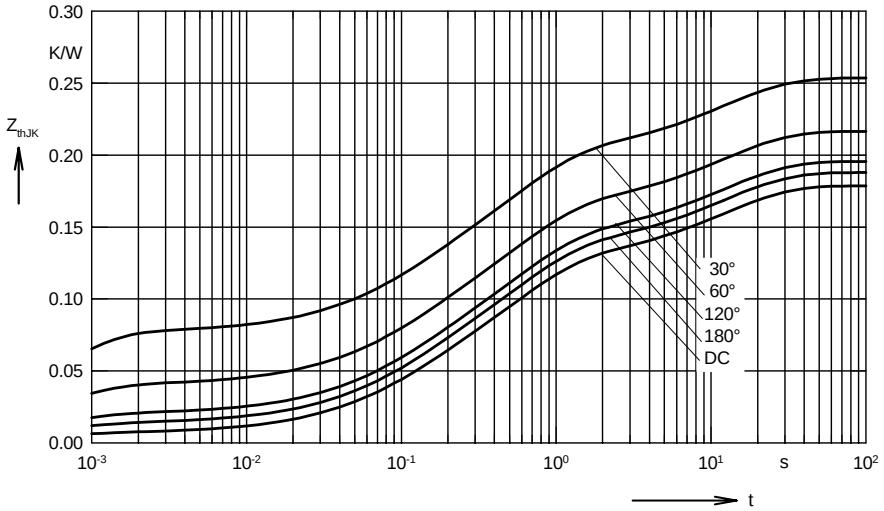

Fig. 8 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.179
180°	0.188
120°	0.196
60°	0.216
30°	0.254

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0066	0.00054
2	0.0358	0.098
3	0.0831	0.54
4	0.0129	12
5	0.04	12

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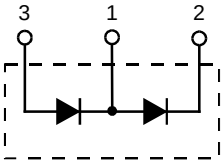
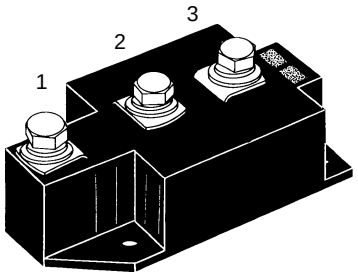
High Power Diode Modules

I_{FRMS} = 2x 480 A
I_{FAVM} = 2x 305 A
V_{RRM} = 800-2200 V

V_{RSM} V	V_{RRM} V	Type
900	800	MDD 310-08N1
1300	1200	MDD 310-12N1
1500	1400	MDD 310-14N1
1700	1600	MDD 310-16N1
2100	2000	MDD 310-20N1
2300	2200	MDD 310-22N1





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		480	A
I_{FAVM}	T_C = 100°C; 180° sine		305	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	11 500	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	12 200	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	9 600	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	10 200	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	662 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	620 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	460 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	430 000	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-5/22-44	Nm/lb.in.
	Terminal connection torque (M8)		12-15/106-132	Nm/lb.in.
Weight	Typical including screws		320	g

Symbol	Test Conditions		Characteristic Values	
I_{RRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$		40	mA
V_F	I_F = 600 A; T_{VJ} = 25°C		1.2	V
V_{T0}	For power-loss calculations only		0.75	V
r_T	$T_{VJ} = T_{VJM}$		0.63	mΩ
R_{thJC}	per diode; DC current	other values see Fig. 6/7	0.129	K/W
	per module		0.065	K/W
R_{thJK}	per diode; DC current		0.169	K/W
	per module		0.0845	K/W
Q_S	T_{VJ} = 125°C, I_F = 400 A; -di/dt = 50 A/µs		760	µC
I_{RM}			275	A
d_S	Creepage distance on surface		12.7	mm
d_A	Strike distance through air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

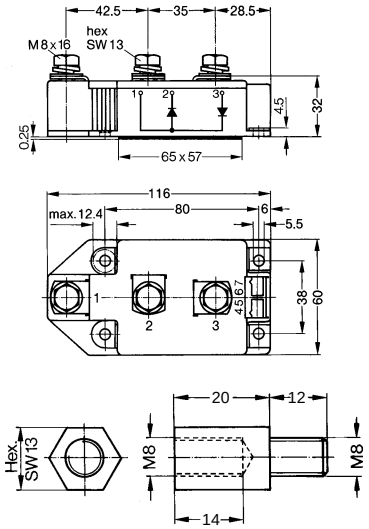
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Threaded spacer for higher Anode/Cathode construction: Type **ZY 250**, material brass

936

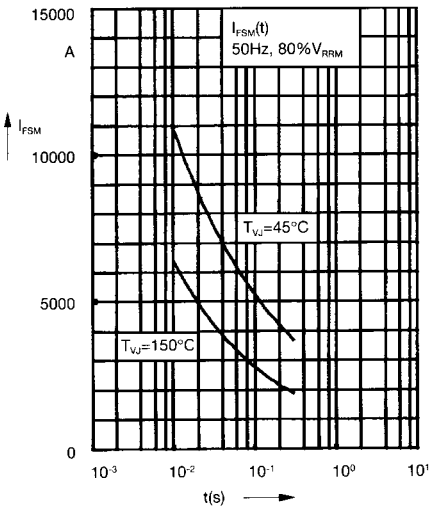


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

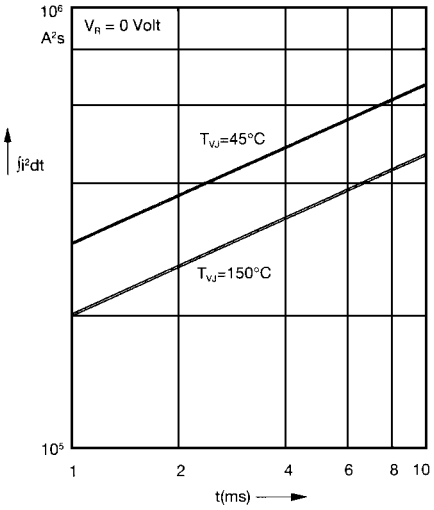


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

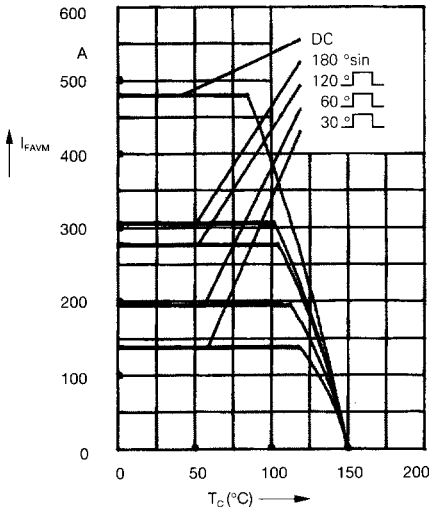


Fig. 2a Maximum forward current at case temperature

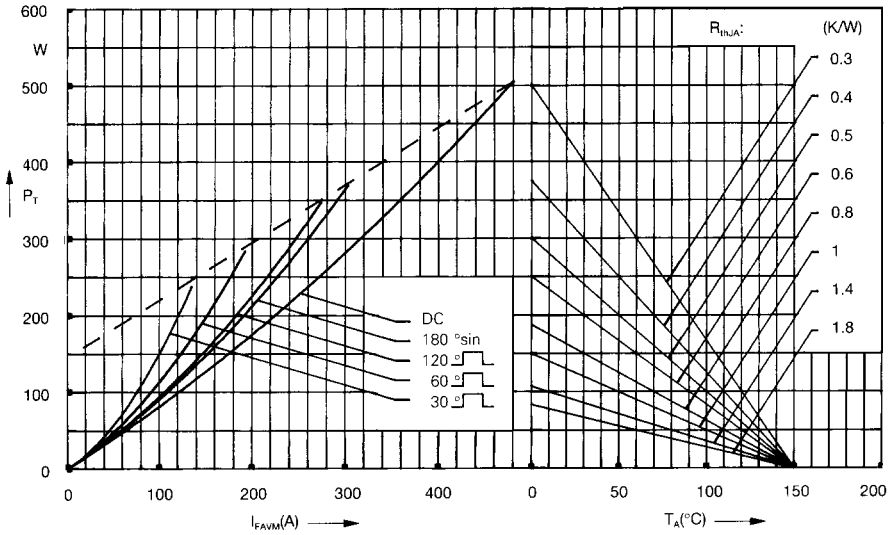


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

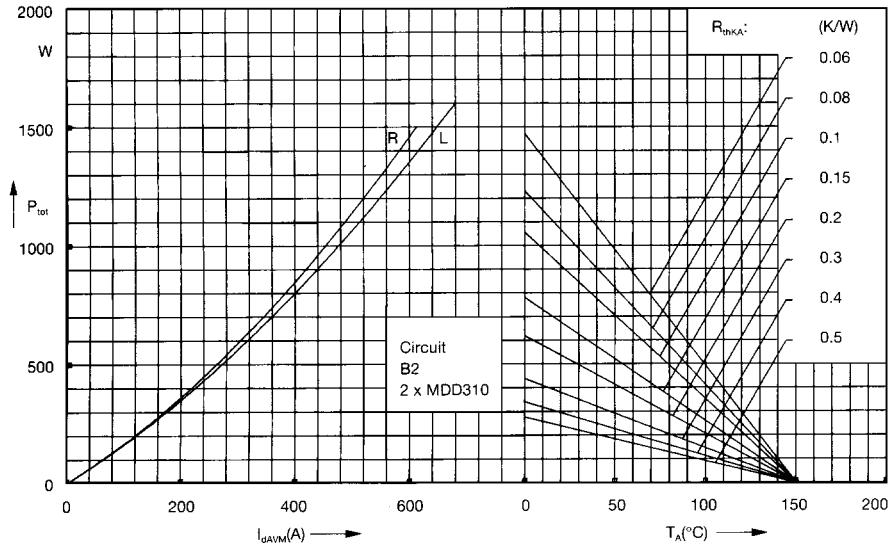


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

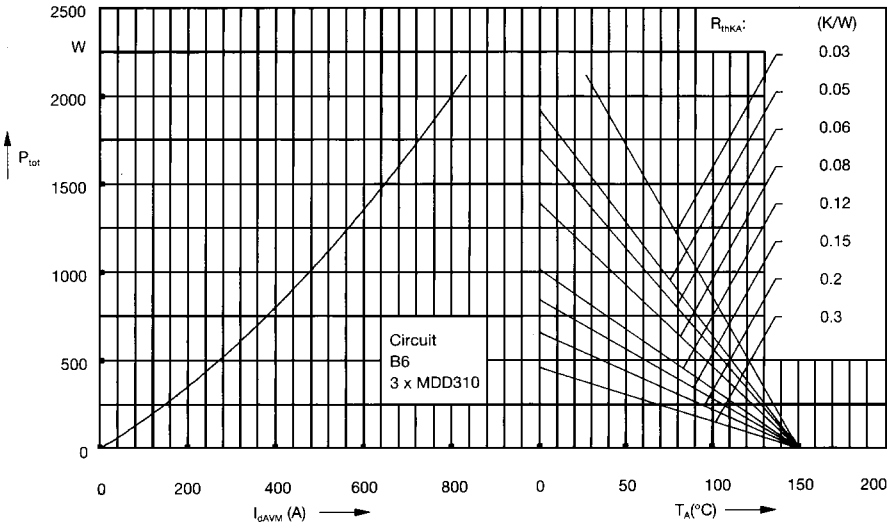


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

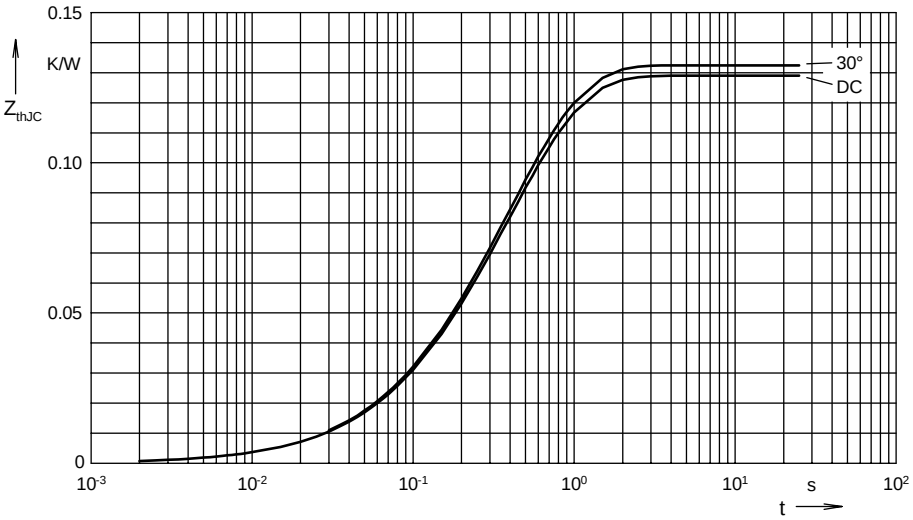


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.129
180°	0.131
120°	0.132
60°	0.132
30°	0.133

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456

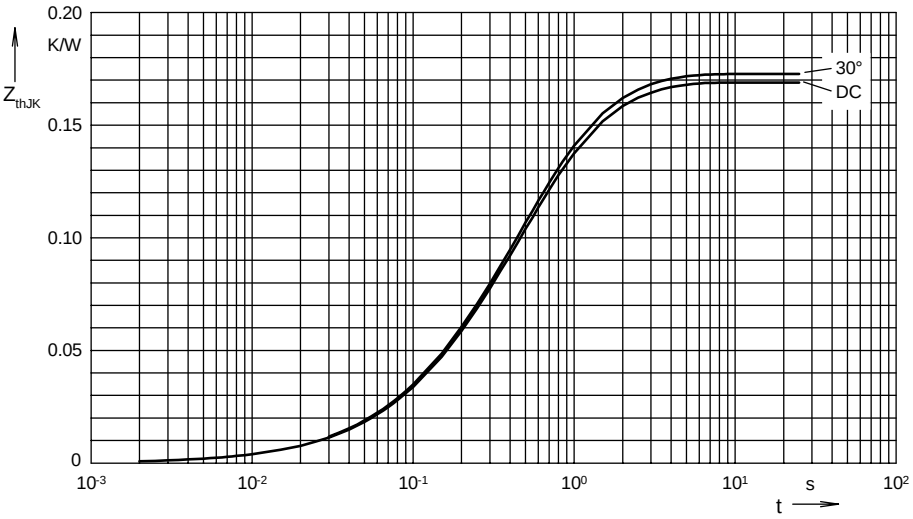


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.169
180°	0.171
120°	0.172
60°	0.172
30°	0.173

Constants for Z_{thJK} calculation:

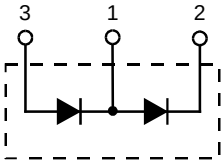
i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456
4	0.04	1.36

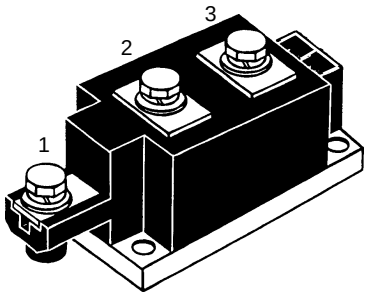
838

High Power Diode Modules

I_{FRMS} = 2x 520 A
I_{FAVM} = 2x 310 A
V_{RRM} = 1200-2200 V

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	1200	MDD 312-12N1
1500	1400	MDD 312-14N1
1700	1600	MDD 312-16N1
1900	1800	MDD 312-18N1
2100	2000	MDD 312-20N1
2300	2200	MDD 312-22N1





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		520	A
I_{FAVM}	T_C = 100°C; 180° sine		310	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz)	10500	A
	V_R = 0	t = 8.3 ms (60 Hz)	11200	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	9200	A
	V_R = 0	t = 8.3 ms (60 Hz)	9800	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz)	551000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	527000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	423 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	403 000	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M6)		4.5-7/40-62	Nm/lb.in.
	Terminal connection torque (M8)		11-13/97-115	Nm/lb.in.
Weight	Typical including screws		750	g

Symbol	Test Conditions	Characteristic Values	
I_{RRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$	30	mA
V_F	I_F = 600 A; T_{VJ} = 25°C	1.32	V
V_{T0}	For power-loss calculations only	0.8	V
r_T	$T_{VJ} = T_{VJM}$	0.6	mΩ
R_{thJC}	per diode; DC current	0.12	K/W
	per module	0.06	K/W
R_{thJK}	per diode; DC current	0.16	K/W
	per module	0.08	K/W
Q_S	T_{VJ} = 125°C; I_F = 400 A; -di/dt = 50 A/µs	700	µC
I_{RM}		260	A
d_S	Creeping distance on surface	12.7	mm
d_A	Creepage distance in air	9.6	mm
a	Maximum allowable acceleration	50	m/s^2

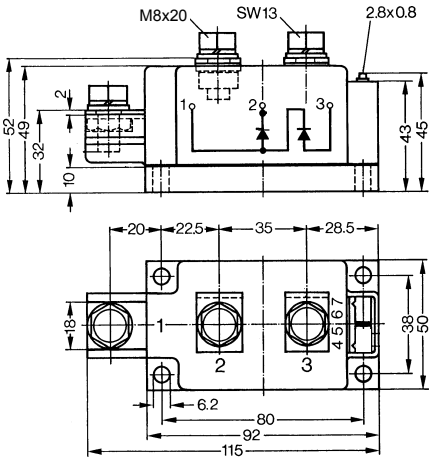
Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package
- Direct copper bonded Al_2O_3-ceramic with copper base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered E 72873

Applications
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



749

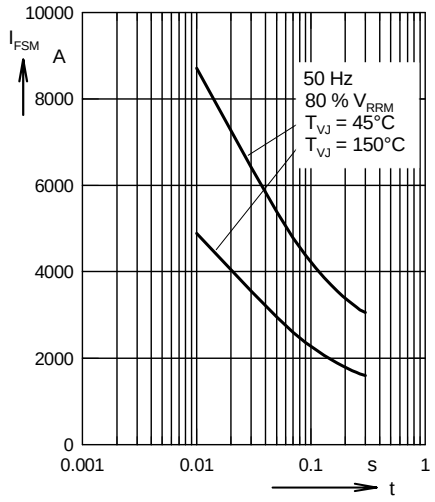


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

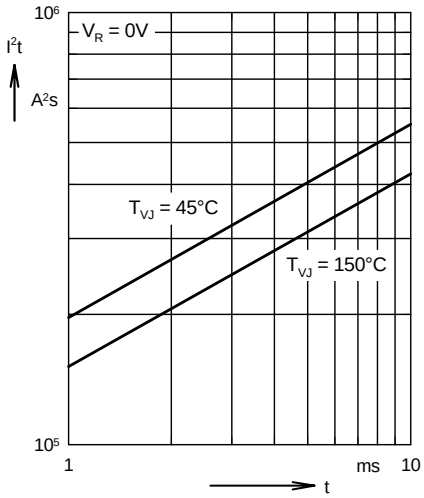


Fig. 2 I^2t versus time (1-10 ms)

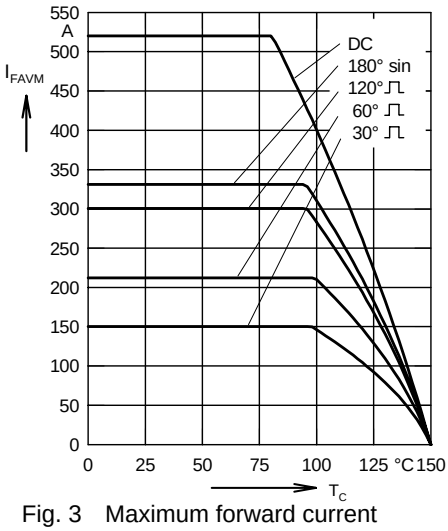


Fig. 3 Maximum forward current at case temperature

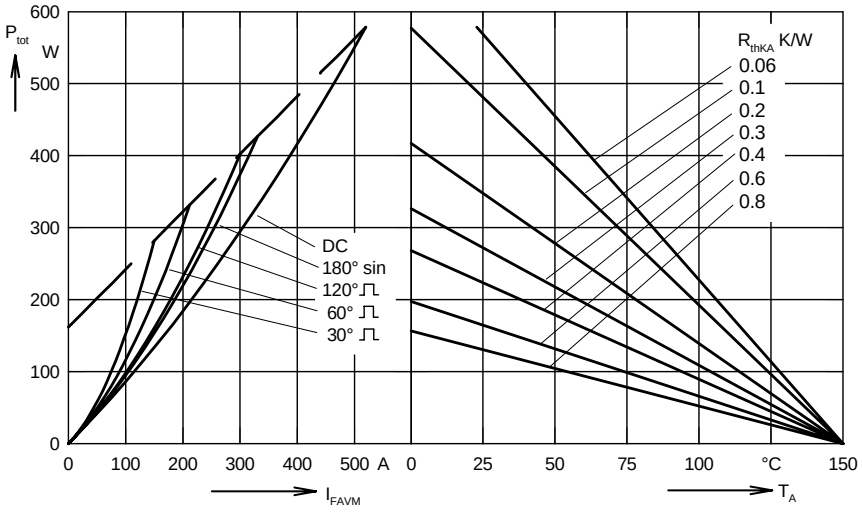


Fig. 4 Power dissipation versus forward current and ambient temperature (per diode)

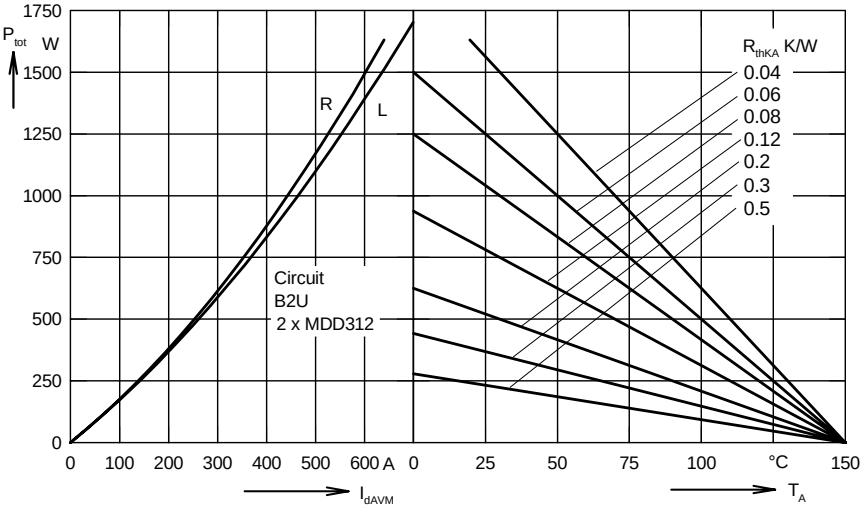


Fig. 5 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

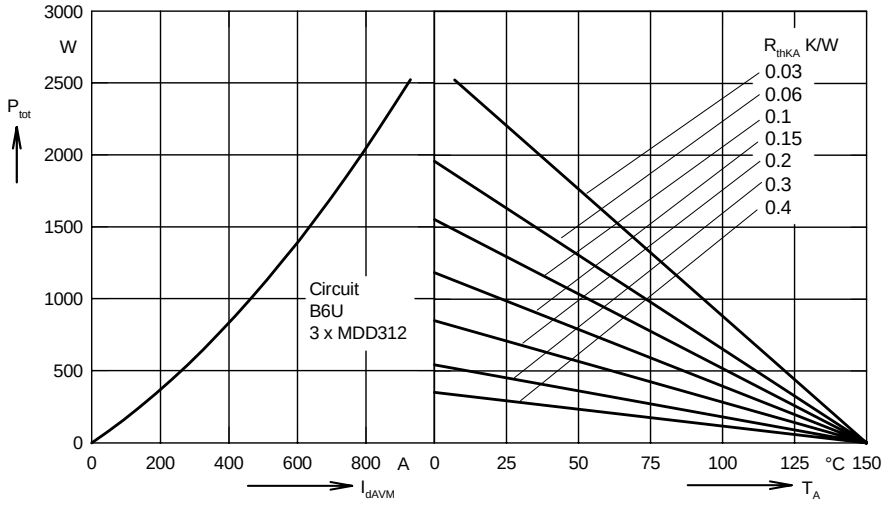


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

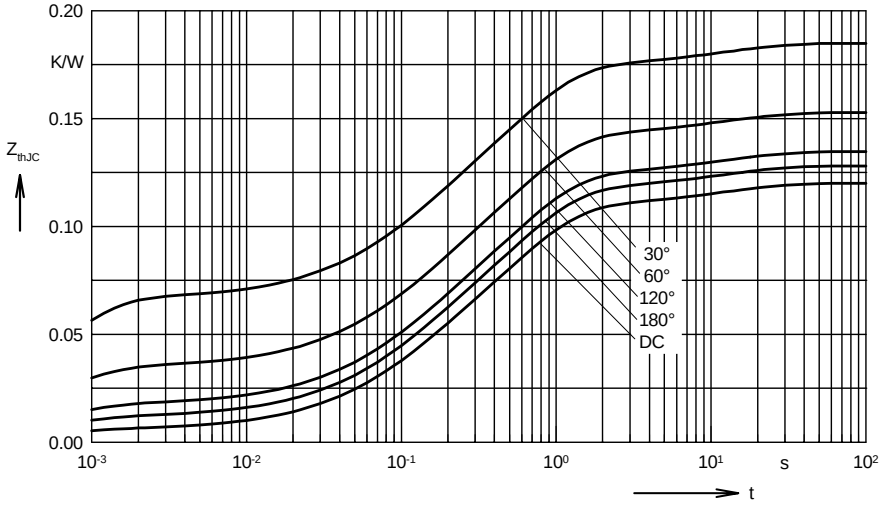


Fig. 7 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.120
180°C	0.128
120°C	0.135
60°C	0.153
30°C	0.185

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0058	0.00054
2	0.031	0.098
3	0.072	0.54
4	0.0112	12

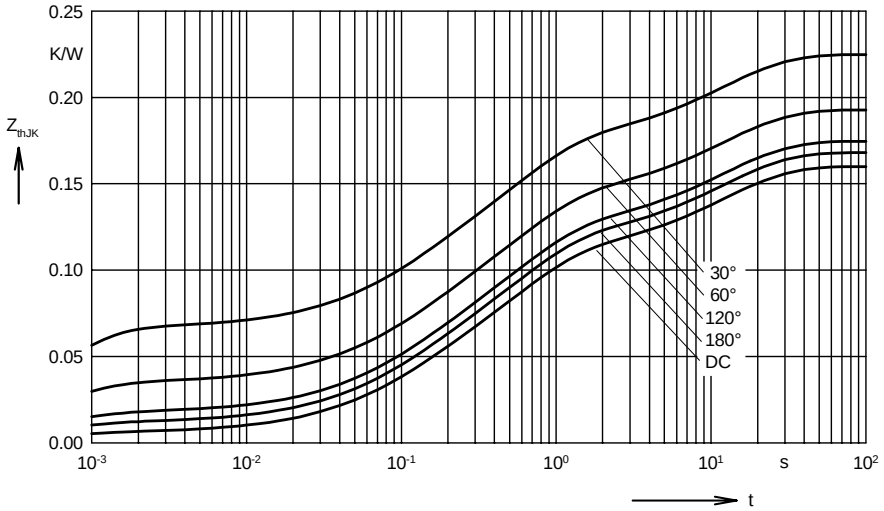


Fig. 9 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.160
180°C	0.168
120°C	0.175
60°C	0.193
30°C	0.225

Constants for Z_{thJK} calculation:

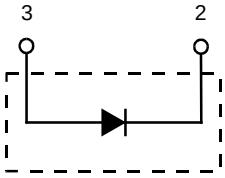
i	R_{thi} (K/W)	t_i (s)
1	0.0058	0.00054
2	0.031	0.098
3	0.072	0.54
4	0.0112	12
5	0.04	12

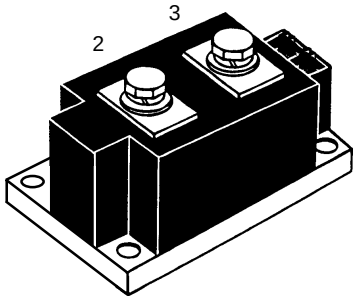
808

High Power Diode Modules

I_{FRMS} = 880 A
I_{FAVM} = 560 A
V_{RRM} = 1200-2200 V

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	**1200**	**MDO 500-12N1**
1500	**1400**	**MDO 500-14N1**
1700	**1600**	**MDO 500-16N1**
1900	**1800**	**MDO 500-18N1**
2100	**2000**	**MDO 500-20N1**
2300	**2200**	**MDO 500-22N1**





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$		880	A
I_{FAVM}	T_C = 85°C; 180° sine		560	A
I_{FSM}	T_{VJ} = 45°C	t = 10 ms (50 Hz)	15000	A
	V_R = 0	t = 8.3 ms (60 Hz)	16000	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	13000	A
	V_R = 0	t = 8.3 ms (60 Hz)	14400	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz)	1125000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	1062000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	845000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	813000	A^2s
T_{VJ}			-40...140	°C
T_{VJM}			140	°C
T_{stg}			-40...125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M6)		4.5-7/40-62	Nm/lb.in.
	Terminal connection torque (M8)		11-13/97-115	Nm/lb.in.
Weight	Typical including screws		650	g

Symbol	Test Conditions	Characteristic Values	
I_{RRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$	30	mA
V_F	I_F = 1200 A; T_{VJ} = 25°C	1.3	V
V_{T0}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)	0.8	V
r_T		0.38	mΩ
R_{thJC}	DC current	0.072	K/W
R_{thJK}	DC current	0.096	K/W
d_S	Creeping distance on surface	21.7	mm
d_A	Creepage distance in air	9.6	mm
a	Maximum allowable acceleration	50	m/s^2

Data according to IEC 60747 and refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package
- Direct copper bonded Al_2O_3-ceramic with copper base plate
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- Battery DC power supplies

Advantages
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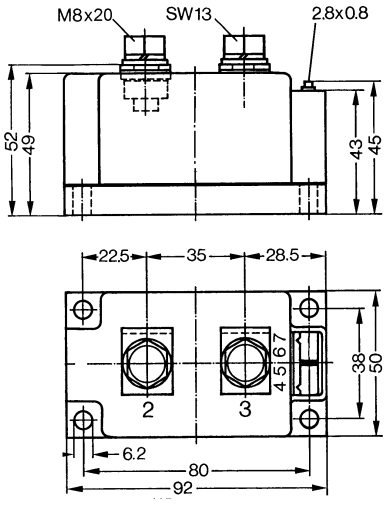
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



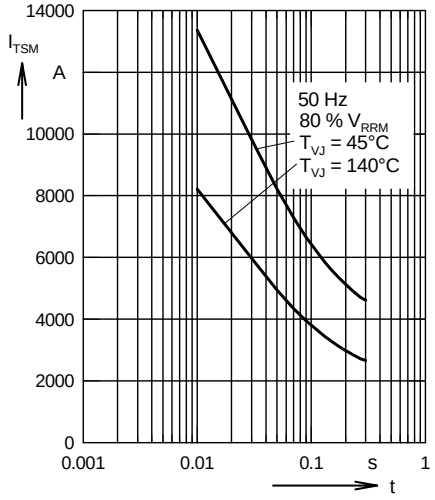


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

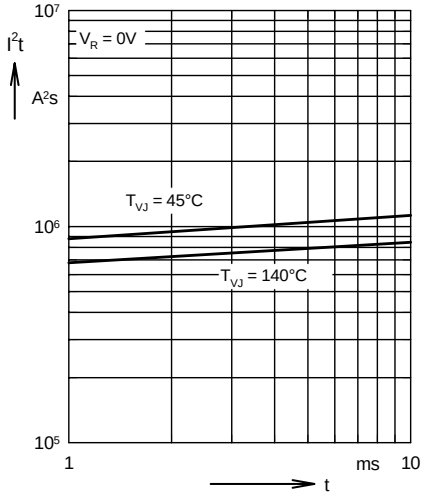


Fig. 2 I^2t versus time (1-10 ms)

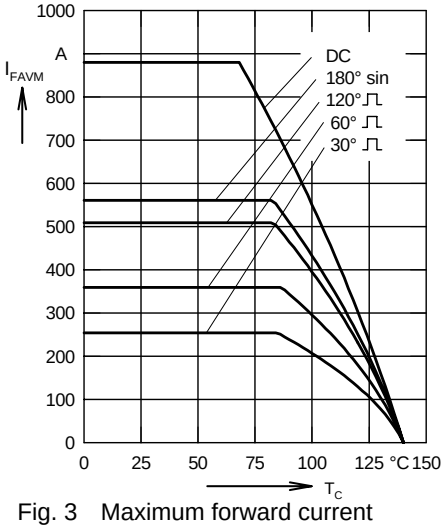


Fig. 3 Maximum forward current at case temperature

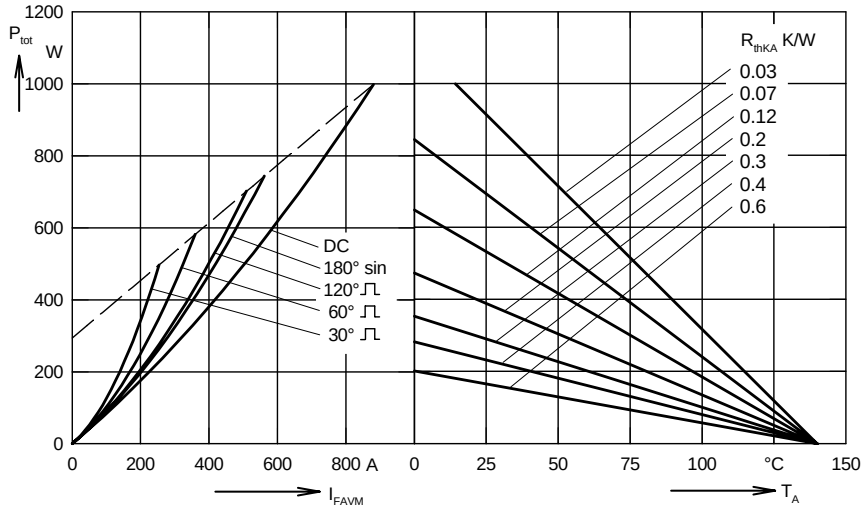


Fig. 4 Power dissipation versus forward current and ambient temperature

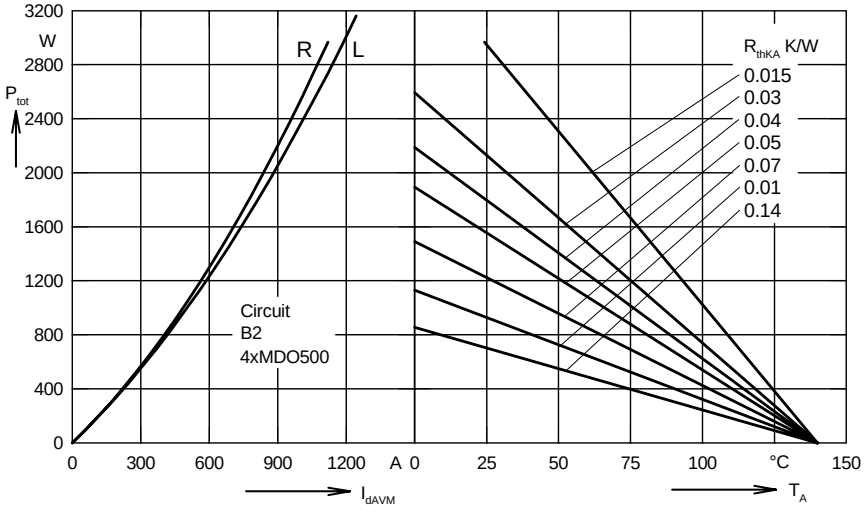


Fig. 5 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

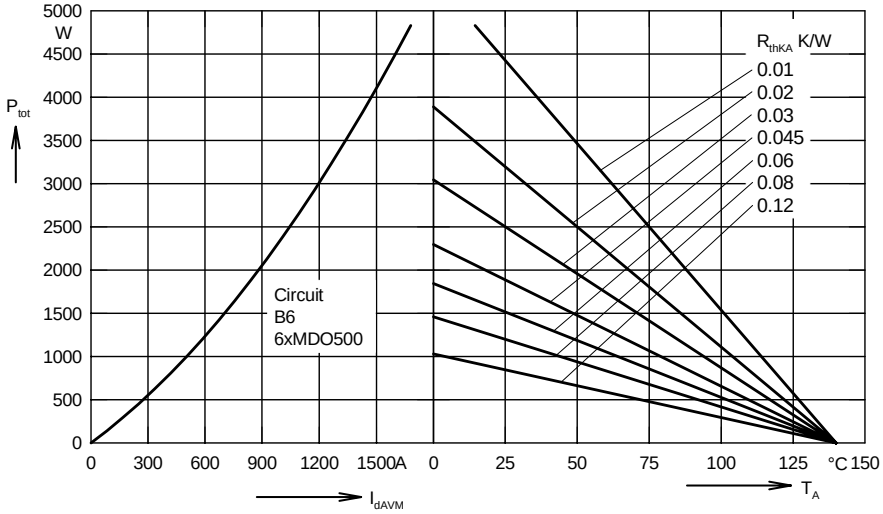


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

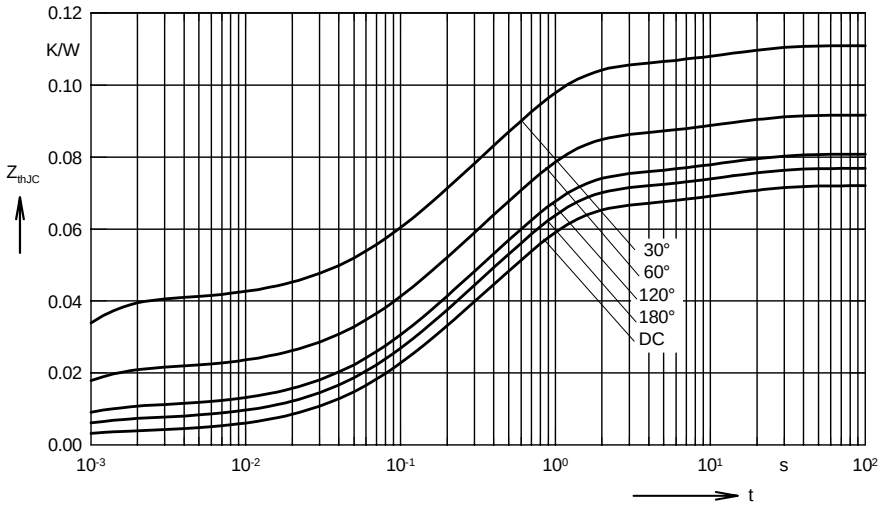


Fig. 7 Transient thermal impedance junction to case

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.072
180°	0.0768
120°	0.081
60°	0.092
30°	0.111

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12

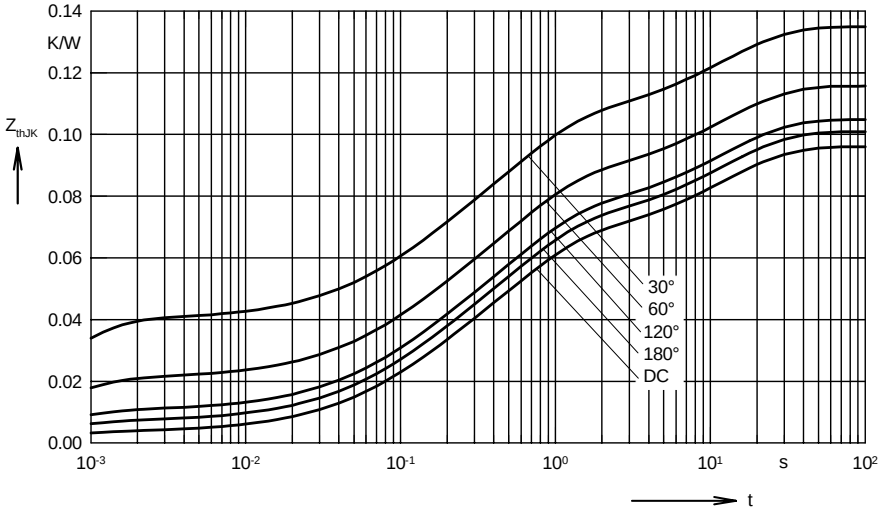


Fig. 8 Transient thermal impedance junction to heatsink

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.096
180°	0.1
120°	0.105
60°	0.116
30°	0.135

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12
5	0.024	12