

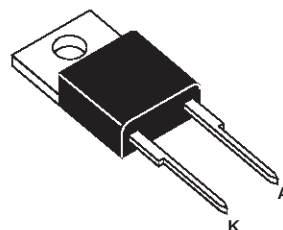
RECOVERY RECTIFIER DIODES

MAIN PRODUCTS CHARACTERISTICS

$I_F(AV)$	10 A
V_{RRM}	800 V
$T_j(max)$	150°C
$V_F(max)$	1.35 V
$t_{rr}(max)$	300 ns

FEATURES

- HIGH VOLTAGE CAPABILITY
- FAST AND SOFT RECOVERY
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF THE t_{rr} AND I_{RM} AT 100°C UNDER USERS CONDITIONS
- MOTOR CONTROLS AND CONVERTERS
- SWITCH MODE POWER SUPPLIES
- INSULATED PACKAGE: TO-220AC
Insulating voltage = 2500 V_{RMS}



Insulated TO-220AC

DESCRIPTION

Fast recovery rectifiers suited for applications in combination with superswitch transistors.

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage	$t_p \leq 20\mu s$	800	V
$I_{F(RMS)}$	RMS forward current		16	A
$I_{F(AV)}$	Average forward current	$T_c = 100^\circ C$ $\delta = 0.5$	10	A
I_{FSM}	Surge non repetitive forward current	$T_p = 10\text{ ms}$ Sinusoidal	120	A
P_{tot}	Power dissipation	$T_c = 100^\circ C$	20	W
T_{stg}	Storage temperature range		- 40 to + 150	°C
T_j	Maximum operating junction temperature		+ 150	

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case	3.5	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameters	Test conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = V _{RRM}			20	mA
		T _j = 100°C				1	mA
V _F **	Forward voltage drop	T _j = 25°C	I _F = 10 A			1.4	V
		T _j = 100°C				1.35	V

Pulse test : * tp = 5 ms, δ < 2 %
 ** tp = 380 μs, δ < 2 %

To evaluate the conduction losses use the following equation :
 $P = 1.2 \times I_{F(AV)} + 0.015 \times I_F^2 (RMS)$
 $V_F = 1.2 + 0.015 I_F$

RECOVERY CHARACTERISTICS

Symbol	Test conditions			Min.	Typ.	Max.	Unit
trr	T _j = 25°C	I _F = 1A	dI _F /dt = - 15A/μs V _R = 30V			300	ns
Qrr	T _j = 25°C	I _F = 10A	dI _F /dt = - 50A/μs V _R = 200V		2.3		μC

Fig. 1: Low frequency power losses versus average current.

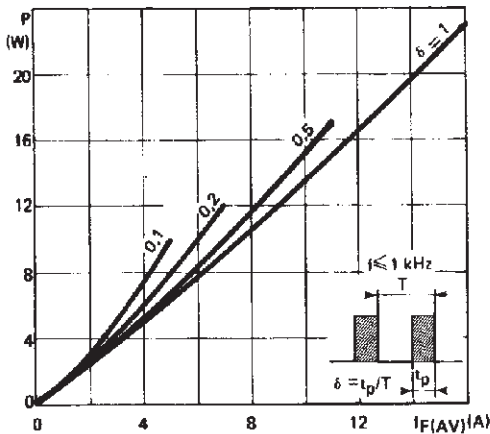


Fig. 2: Peak current versus form factor.

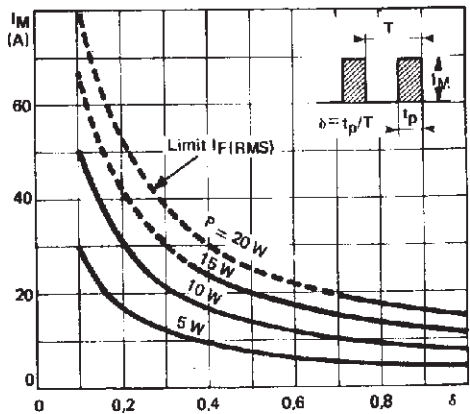


Fig. 3: Non repetitive peak surge current versus overload duration.

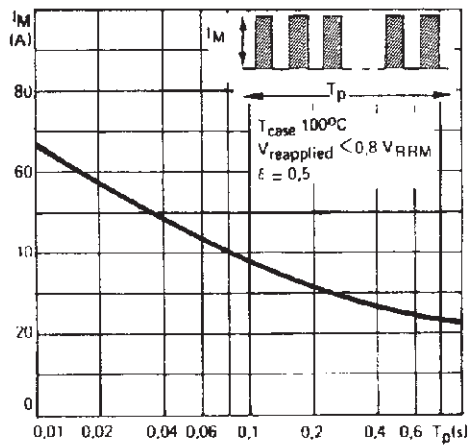


Fig. 4: Thermal impedance versus pulse width.

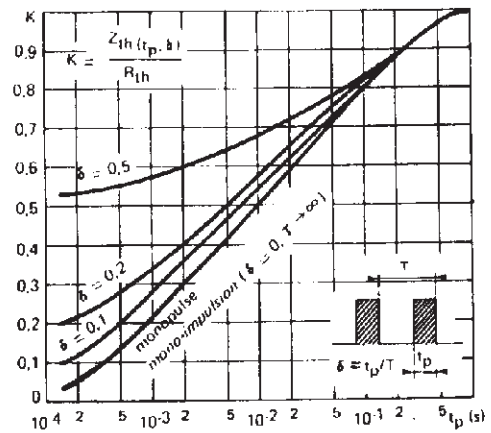


Fig. 5: Voltage drop versus forward current.

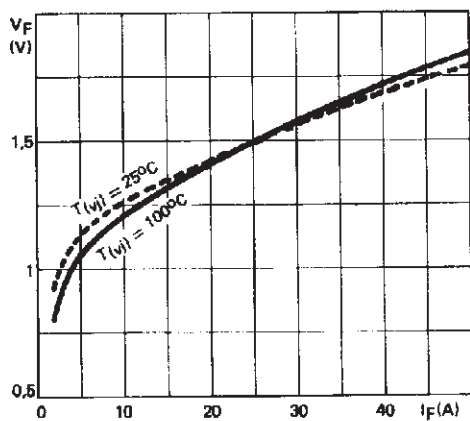


Fig. 6: Capacitance versus applied reverse voltage

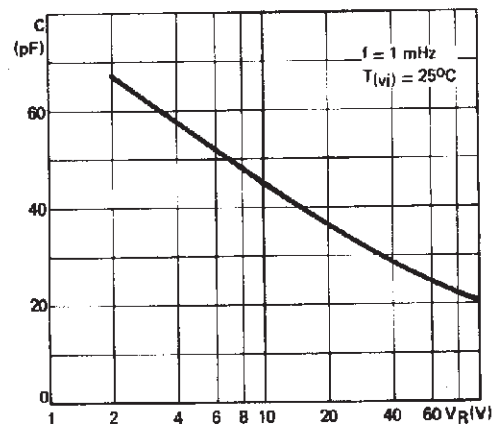


Fig. 7: Recovery charge versus di_F/dt .

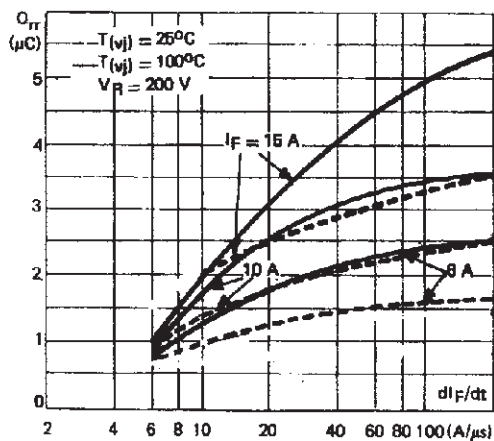
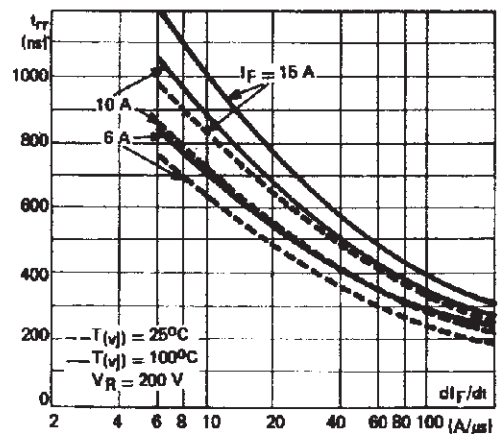
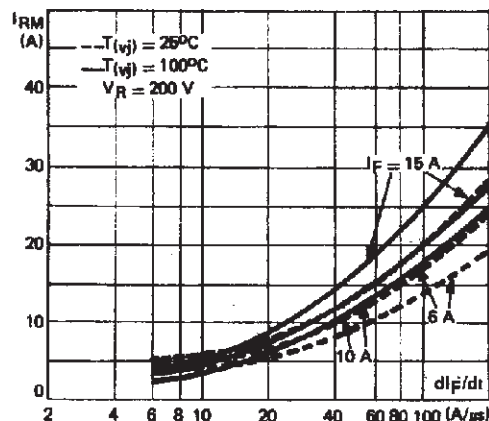


Fig. 8: Recovery time versus di_F/dt .



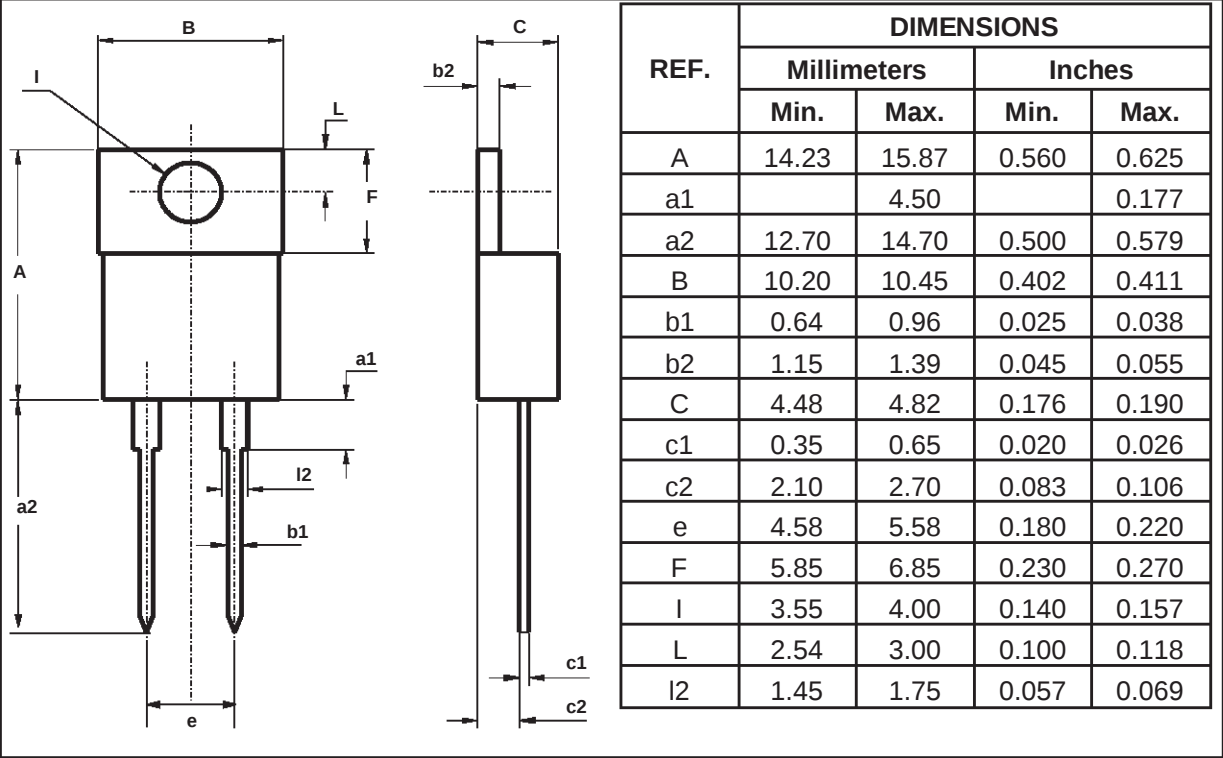
ESM765PI-800

Fig. 9: Peak reverse current versus di_F/dt .



PACKAGE MECHANICAL DATA

Insulated TO-220AC



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