

TV30

RECTIFIER DIODE

APPLICATIONS

- Rectification.
- Freewheel Diode.
- DC Motor Control.
- Power Supplies.
- Welding.
- Battery Chargers.

FEATURES

- High Surge Capability.

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
TV30 20 M or K(R)	2000	$V_{RSM} = V_{RRM} + 100V$
TV30 14 M or K(R)	1400	
TV30 10 M or K(R)	1000	
TV30 06 M or K(R)	600	

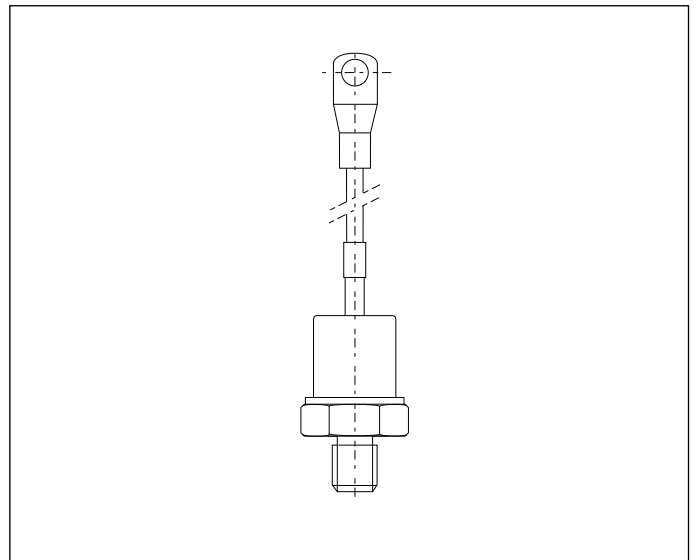
Lower voltage grades available.

M for M12 thread. K for 1/2" - 20UNF thread, R for reverse polarity.

Add C to type number for DO8C package.

KEY PARAMETERS

V_{RRM}	2000V
$I_{F(AV)}$	335A
I_{FSM}	6000A



Outline type code: DO9 Turn to page 6 for further information.

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
Single Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	335	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	525	A
I_F	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	440	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$	4.8	kA
I^2t	I^2t for fusing	$V_R = 50\% V_{RRM}$ - 1/4 sine	115×10^6	A ² s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$	6.0	kA
I^2t	I^2t for fusing	$V_R = 0$	180×10^3	A ² s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	dc	-	0.13	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Mounting torque 35.0Nm with mounting compound	-	0.06	$^{\circ}C/W$
T_{vj}	Virtual junction temperature	Forward (conducting)	-	175	$^{\circ}C$
		Reverse (blocking)	-	175	$^{\circ}C$
T_{stg}	Storage temperature range		-55	200	$^{\circ}C$
-	Mounting Torque		30.0	35.0	Nm

CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{FM}	Forward voltage	At 1000A peak, $T_{case} = 25^{\circ}C$	-	1.4	V
I_{RRM}	Peak reverse current	At V_{RRM} , $T_{case} = 175^{\circ}C$	-	20	mA
Q_S	Total stored charge	$I_F = 200A$, $di_{RR}/dt = 20A/\mu s$, $T_{case} = 25^{\circ}C$	300*	-	μC
I_{RM}	Peak recovery current		90*	-	A
t_{rr}	reverse recovery time		6.5*	-	μs
V_{TO}	Threshold voltage	At $T_{vj} = 175^{\circ}C$	-	0.8	V
r_T	Slope resistance	At $T_{vj} = 175^{\circ}C$	-	0.6	m Ω

*Typical values.

CURVES

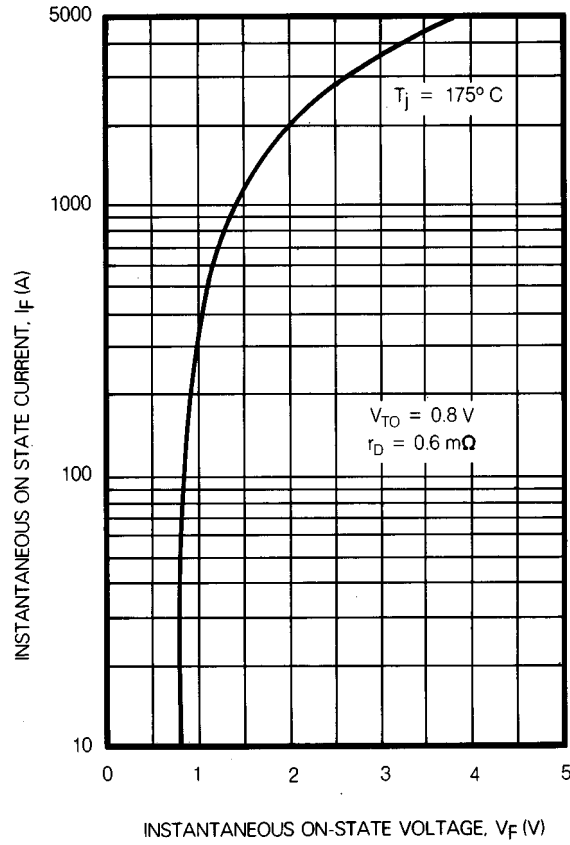


FIG. 1 MAXIMUM (LIMIT) FORWARD CONDUCTION CHARACTERISTIC

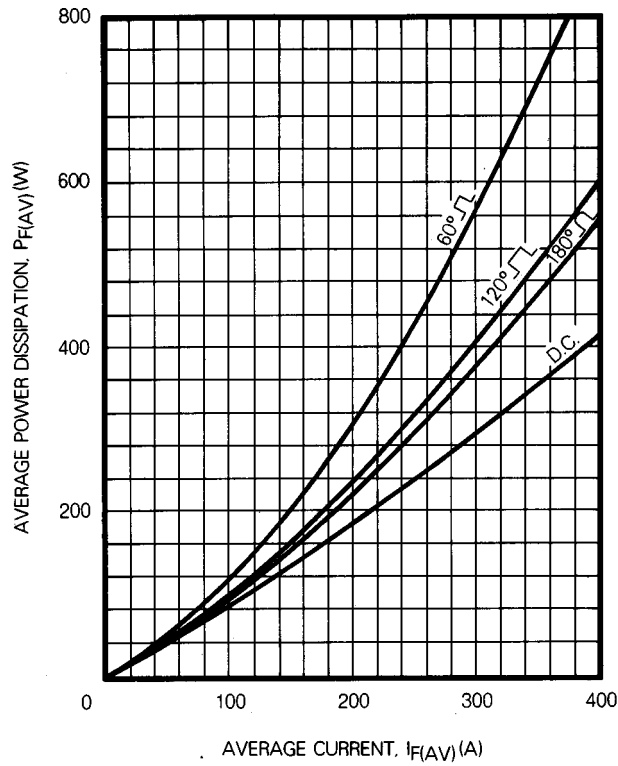


FIG. 2 MAXIMUM FORWARD POWER DISSIPATION

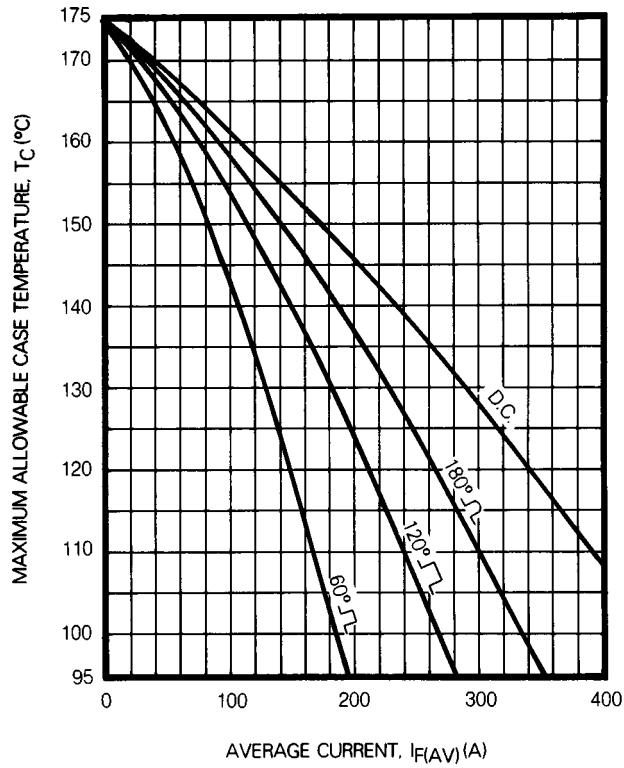


FIG. 3 MAXIMUM ALLOWABLE CASE TEMPERATURE

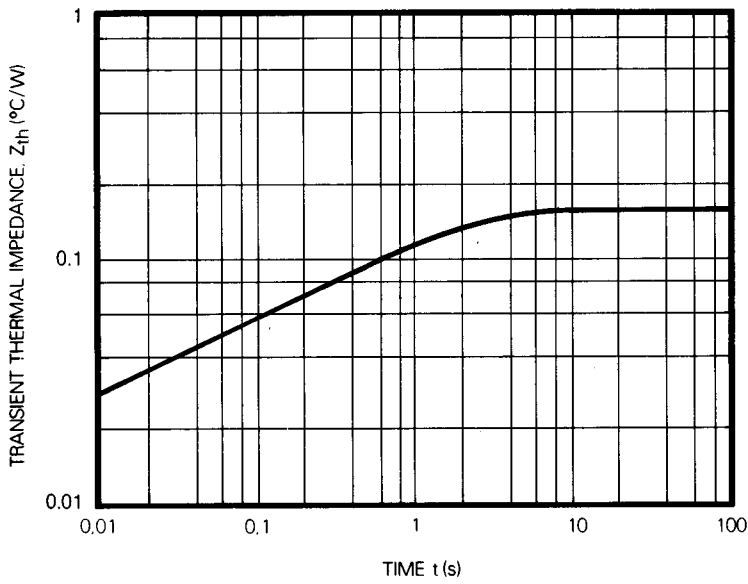


FIG. 4 TRANSIENT THERMAL IMPEDANCE - JUNCTION TO CASE

Conduction angle	Effective thermal Resistance (°C/W) Junction to case	
	Sinusoidal	Rectangular
180°	0.173	0.192
120°	0.179	0.216
60°	0.208	0.272

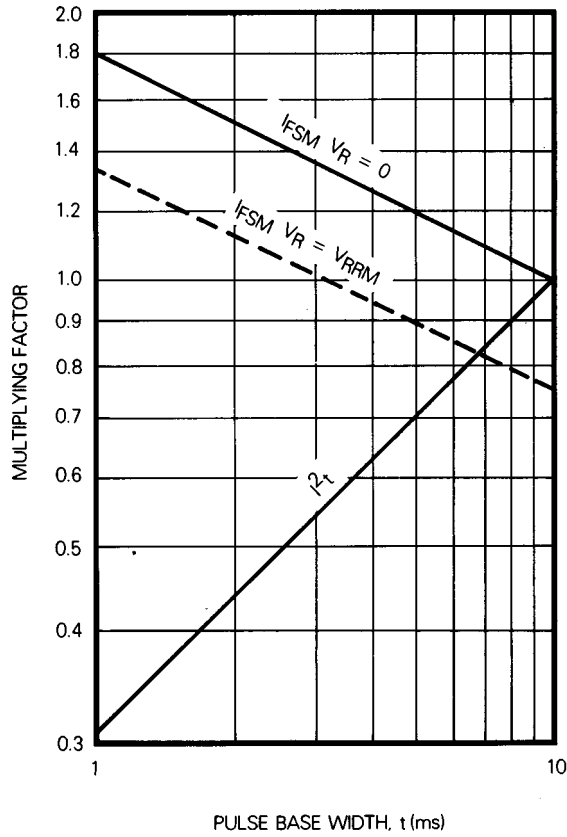


FIG. 5 MULTIPLYING FACTOR FOR NON-REPETITIVE SUB-CYCLE FORWARD CURRENT AND I^2t RATING

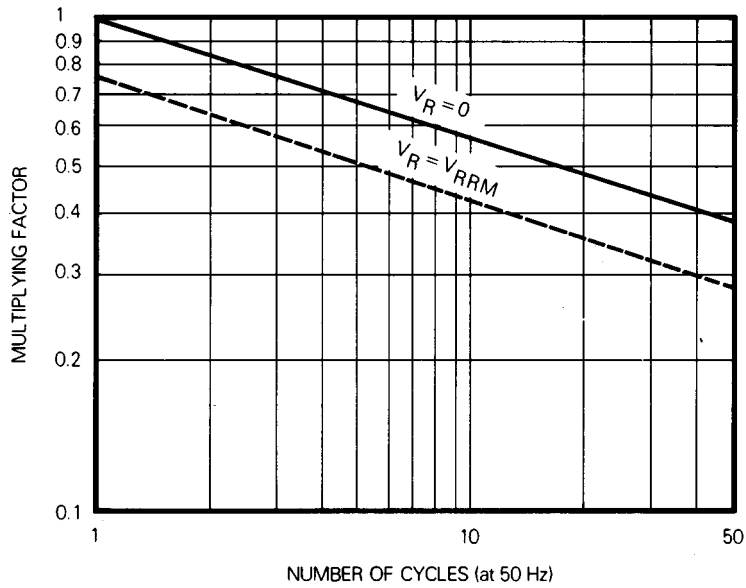
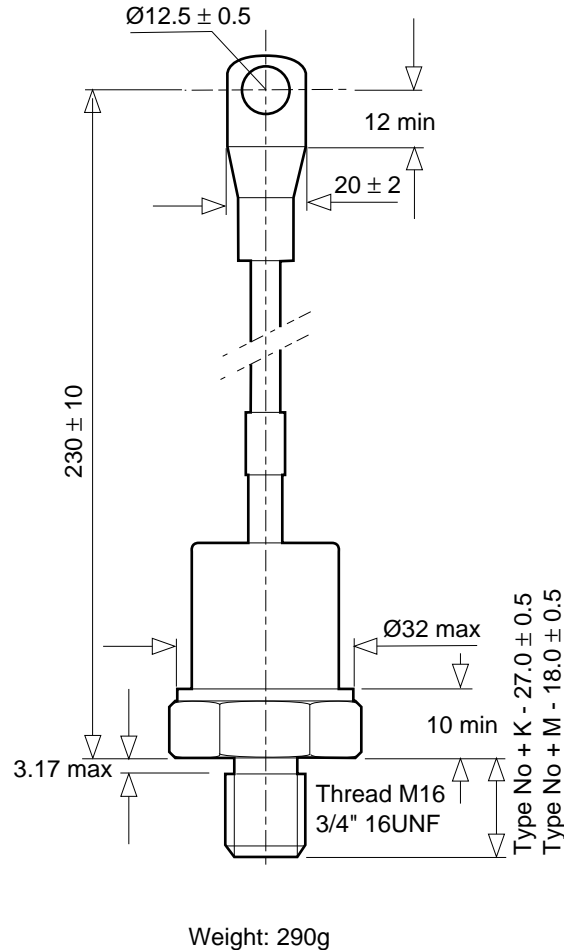


FIG. 6 MULTIPLYING FACTOR FOR NON-REPETITIVE FORWARD CURRENT

PACKAGE DETAILS - DO9

For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise. DO NOT SCALE.

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