

## APPLICATIONS

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

## FEATURES

- High Surge Capability

## VOLTAGE RATINGS

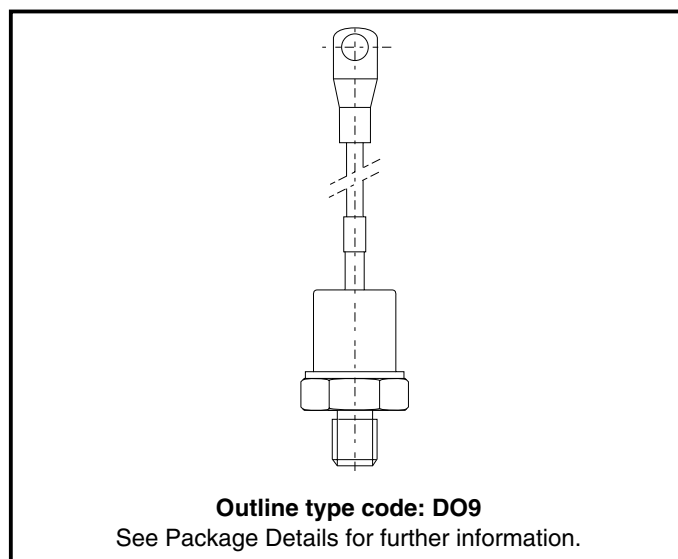
Type Number	Repetitive Peak Reverse Voltage $V_{RRM}$ V	Conditions
TV30 20 M or K(R)	2000	$V_{RSM} = V_{RRM} + 100V$
TV30 14 M or K(R)	1400	
TV30 10 M or K(R)	1000	
TV30 06 M or K(R)	600	

Lower voltage grades available.

M for M16 thread. K for 3/4" - 16UNF thread, R for reverse polarity.

## KEY PARAMETERS

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



**Fig. 1 Package outline**

## CURRENT RATINGS

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

## 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*	-	$\mu C$
$I_{RM}$	Peak recovery current		90*	-	A
$t_{rr}$	reverse recovery time		6.5*	-	$\mu s$
$V_{TO}$	Threshold voltage	At $T_{vj} = 175^{\circ}C$	-	0.8	V
$r_T$	Slope resistance	At $T_{vj} = 175^{\circ}C$	-	0.6	m $\Omega$

\*Typical values.

## CURVES

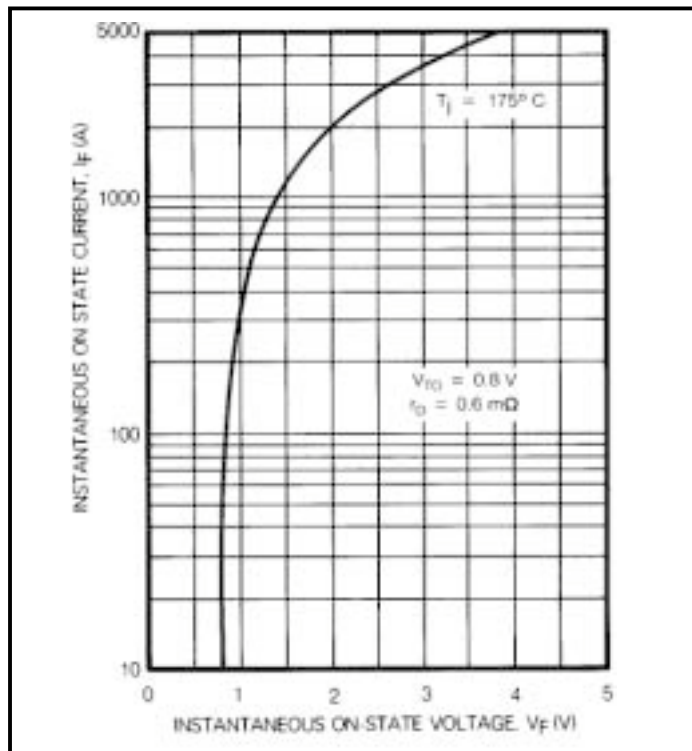


Fig.2 Maximum (limit) forward characteristics

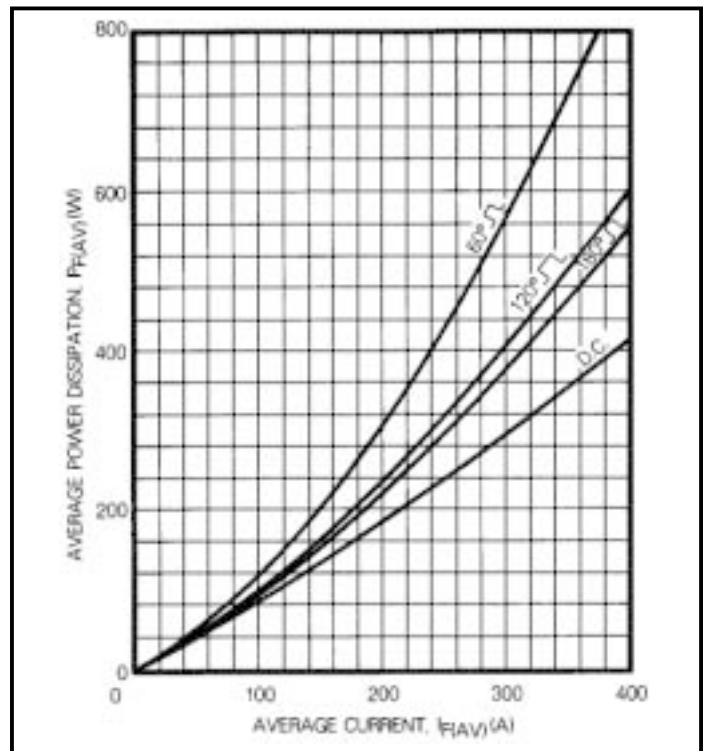


Fig.3 Power dissipation

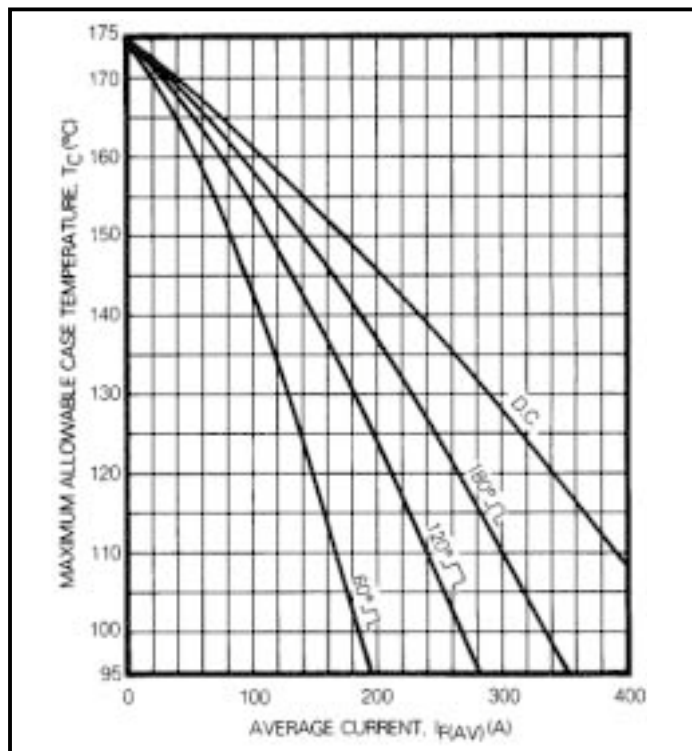


Fig.4 Maximum  $T_{case}$  vs forward current

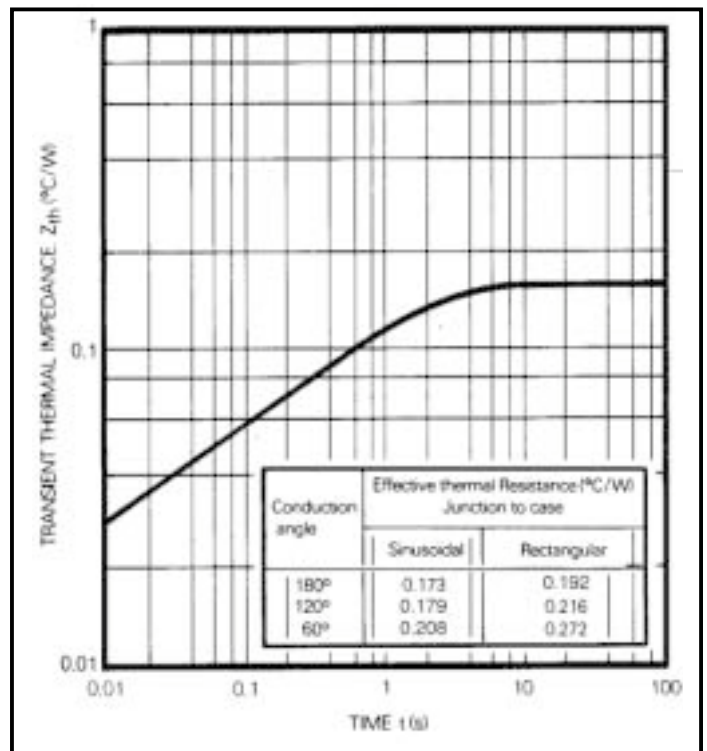


Fig.5 Transient thermal impedance - Junction to case

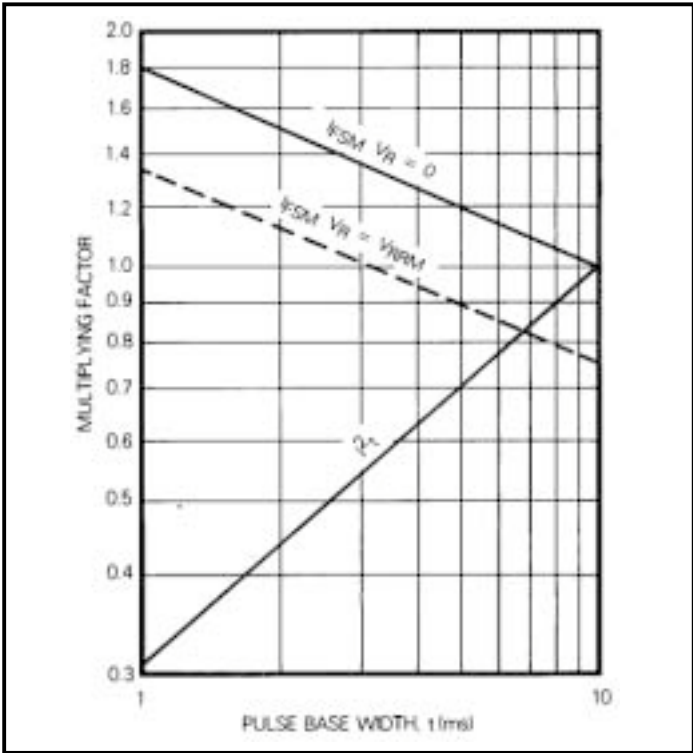


Fig.6 Non-rep. sub-cycle forward current and  $I^2t$  rating

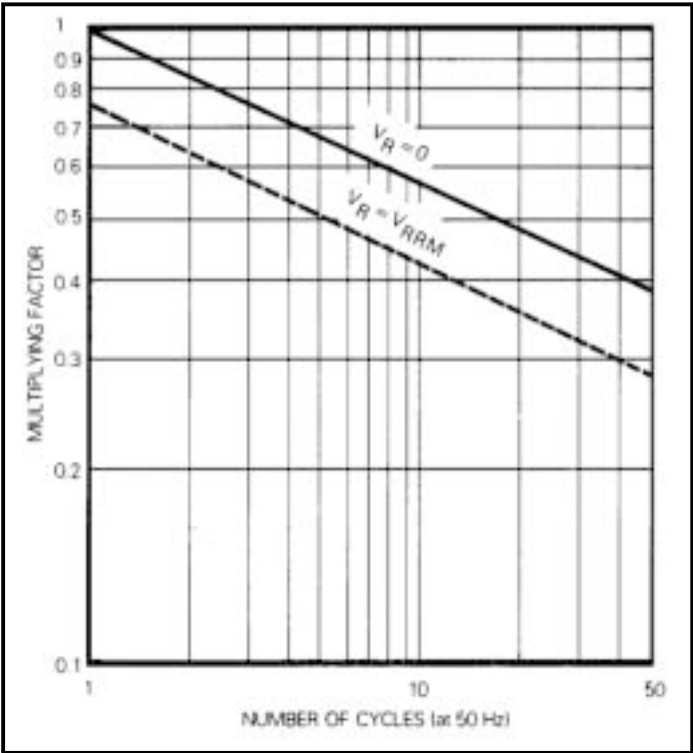
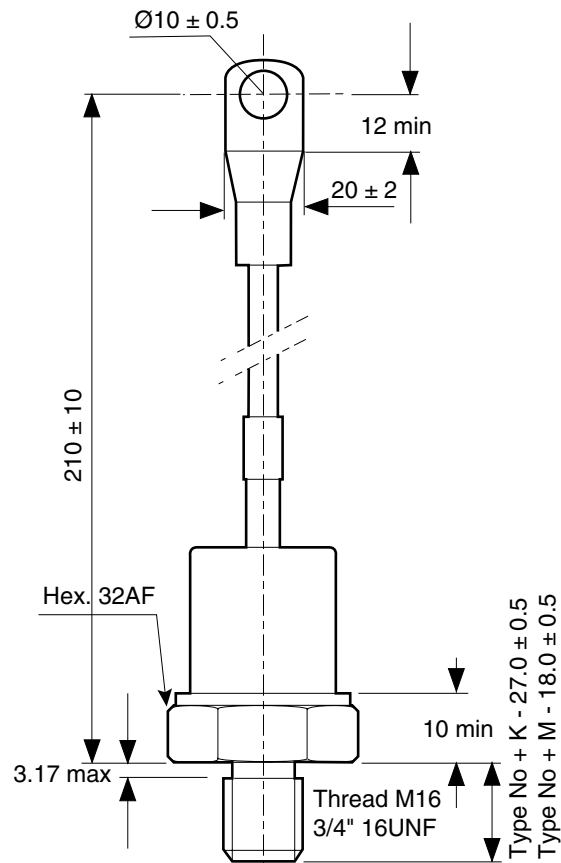


Fig.7 Multiplying factor for non-repetitive forward current

## PACKAGE DETAILS

For further package information, please contact Customer Services. All dimensions in mm, unless stated otherwise.  
DO NOT SCALE.



Package outline type code: DO9

**Fig.8 Package details**

## POWER ASSEMBLY CAPABILITY

The Power Assembly group was set up to provide a support service for those customers requiring more than the basic semiconductor, and has developed a flexible range of heatsink and clamping systems in line with advances in device voltages and current capability of our semiconductors.

We offer an extensive range of air and liquid cooled assemblies covering the full range of circuit designs in general use today. The Assembly group offers high quality engineering support dedicated to designing new units to satisfy the growing needs of our customers.

Using the latest CAD methods our team of design and applications engineers aim to provide the Power Assembly Complete Solution (PACs).

## HEATSINKS

The Power Assembly group has its own proprietary range of extruded aluminium heatsinks which have been designed to optimise the performance of Dynex semiconductors. Data with respect to air natural, forced air and liquid cooling (with flow rates) is available on request.

For further information on device clamps, heatsinks and assemblies, please contact your nearest sales representative or Customer Services.

Stresses above those listed in this data sheet may cause permanent damage to the device. In extreme conditions, as with all semiconductors, this may include potentially hazardous rupture of the package. Appropriate safety precautions should always be followed.



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