THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-a)	Contact to ambient	50	°C/W
Rth (j-c) DC	Junction to case for DC	1.2	°C/W
Rth (j-c) AC	Junction to case for 360° conduction angle (F = 50Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G(AV)}$ = 1W P_{GM} = 40W (tp = 20µs) I_{GM} = 8A (tp = 20µs) V_{GM} = 16V (tp = 20µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test conditions		Quadrant		Value	Unit
I_{GT}	V_D = 12V (DC) R_L = 33Ω	Tj = 25°C	I - II - III	MAX.	200	mA
V_{GT}	V_D = 12V (DC) R_L = 33Ω	Tj = 25°C	I - II - III	MAX.	1.5	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3kΩ	Tj =125°C	I - II - III	MIN.	0.2	V
tgt	$V_D = V_{DRM}$ I_G = 500mA dI_G/dt = 3A/µs	Tj = 25°C	I - II - III	TYP.	2.5	µs
I_L	$I_G = 1.2I_{GT}$	Tj = 25°C	I - III	TYP.	100	mA
			II		200	
I_H*	I_T = 500mA Gate open	Tj = 25°C		TYP.	50	mA
V_{TM}*	I_{TM} = 60A tp = 380µs	Tj = 25°C		MAX.	1.8	V
I_{DRM} I_{RRM}	V_{DRM} rated V_{RRM} rated	Tj = 25°C		MAX.	0.02	mA
		Tj = 125°C		MAX.	8	
dV/dt *	Linear slope up to V_D = 67% V_{DRM} gate open	Tj = 125°C		MIN.	500	V/µs
(dI/dt)c*	(dV/dt)c = 200V/µs	Tj = 125°C		MIN.	35	A/ms
	(dV/dt)c = 10V/µs				142	

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

Fig. 1: Maximum RMS power dissipation versus RMS on-state current (F = 50Hz).(Curves are cut off by (dI/dt)c limitation)

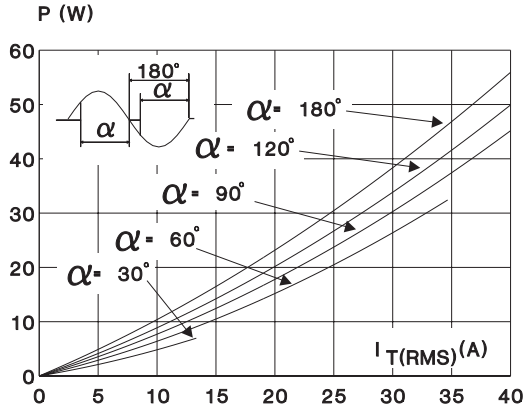


Fig. 2: Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

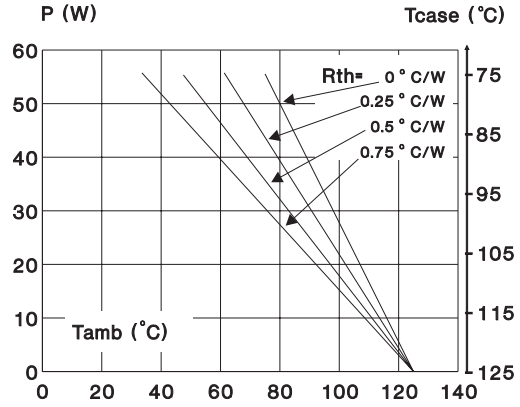


Fig. 3: RMS on-state current versus case temperature.

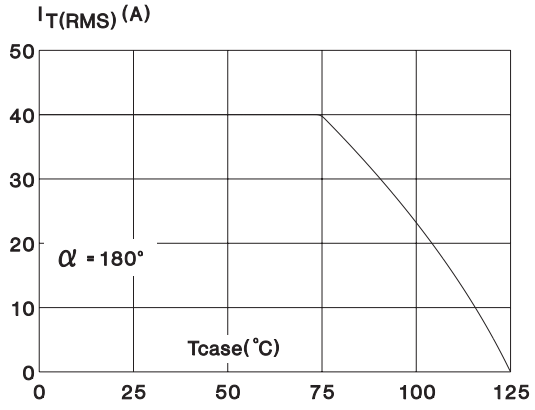


Fig. 4: Relative variation of thermal impedance versus pulse duration.

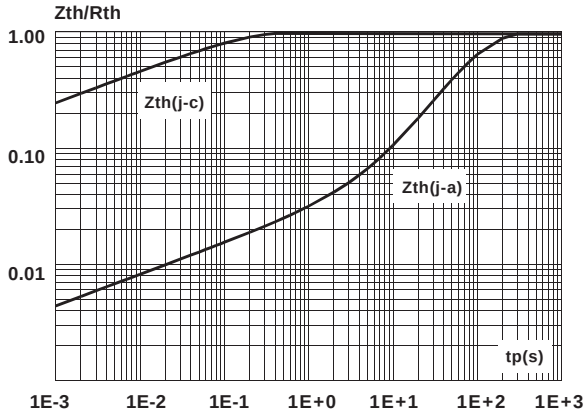


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

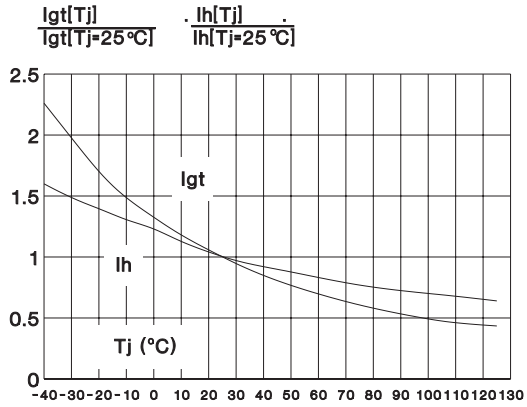


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

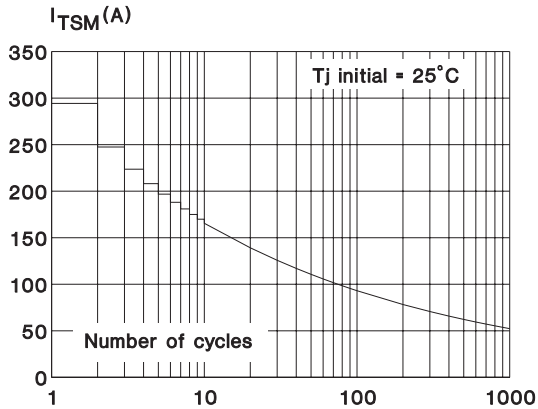


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width: t ≤ 10ms, and corresponding value of I^2t.

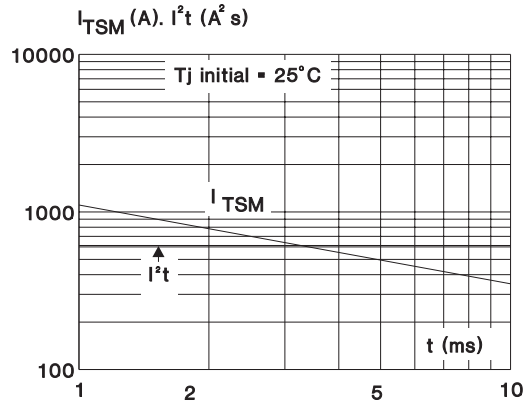


Fig. 8: On-state characteristics (maximum values).

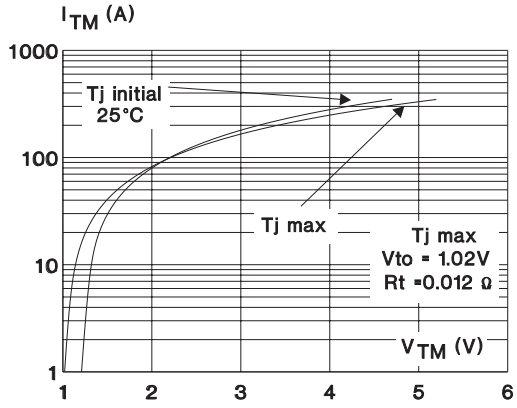
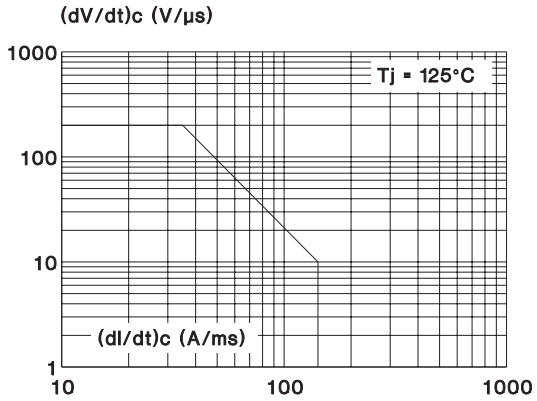
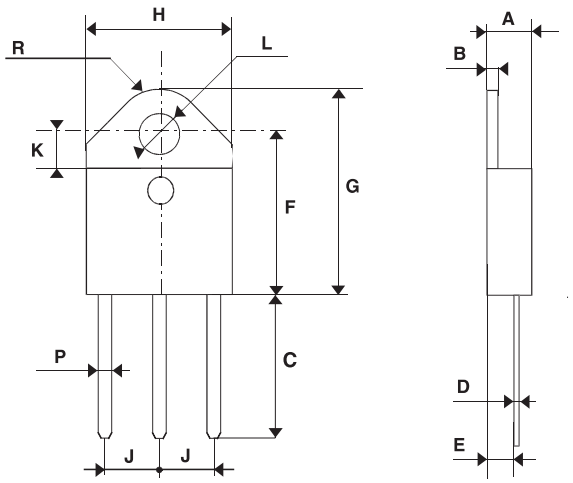


Fig. 9: Safe operating area.



PACKAGE MECHANICAL DATA

TOP3 (Plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
B	1.45	1.55	0.057	0.061
C	14.35	15.60	0.565	0.614
D	0.5	0.7	0.020	0.028
E	2.7	2.9	0.106	0.114
F	15.8	16.5	0.622	0.650
G	20.4	21.1	0.815	0.831
H	15.1	15.5	0.594	0.610
J	5.4	5.65	0.213	0.222
K	3.4	3.65	0.134	0.144
L	4.08	4.17	0.161	0.164
P	1.20	1.40	0.047	0.055
R	4.60 Typ.		0.181 Typ.	

OTHER INFORMATION

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
TPDVx40	TPDVx40	TOP3	4.5 g	120	Bulk

- Epoxy meets UL94,V0
- Cooling method: C
- Recommended torque value: 0.8 m.N.
- Maximum torque value: 1 m.N.