

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-a)	Contact to ambient	50	°C/W
R _{th} (j-c) DC	Junction to case for DC	1.2	°C/W
R _{th} (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	T _j = 25°C	I - II - III	MAX.	200
V _{GT}	V _D = 12V (DC) R _L = 33Ω	T _j = 25°C	I - II - III	MAX.	1.5
V _{GD}	V _D = V _{DRM} R _L = 3.3kΩ	T _j = 125°C	I - II - III	MIN.	0.2
tgt	V _D = V _{DRM} I _G = 500mA dI _G /dt = 3A/μs	T _j = 25°C	I - II - III	TYP.	2.5
I _L	I _G = 1.2I _{GT}	T _j = 25°C	I - III	TYP.	100
			II		200
I _H *	I _T = 500mA Gate open	T _j = 25°C		TYP.	50
V _{TM} *	I _{TM} = 60A tp = 380μs	T _j = 25°C		MAX.	1.8
I _{DRM} I _{RRM}	V _{DRM} rated V _{RRM} rated	T _j = 25°C		MAX.	0.02
		T _j = 125°C		MAX.	8
dV/dt *	Linear slope up to V _D = 67% V _{DRM} gate open	T _j = 125°C		MIN.	500
(dI/dt)c*	(dV/dt)c = 200V/μs	T _j = 125°C		MIN.	35
	(dV/dt)c = 10V/μs				142

* For either polarity of electrode A₂ voltage with reference to electrode A₁.

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

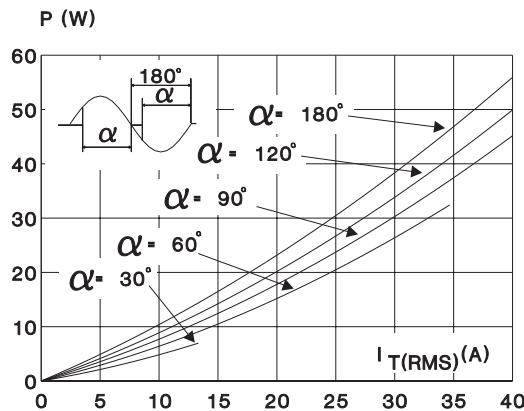


Fig. 3: RMS on-state current versus case temperature.

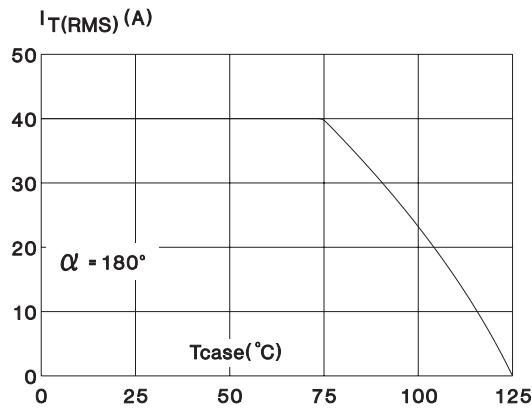


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

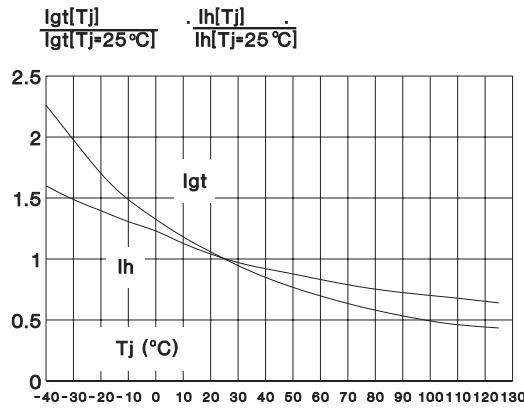


Fig. 2: Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

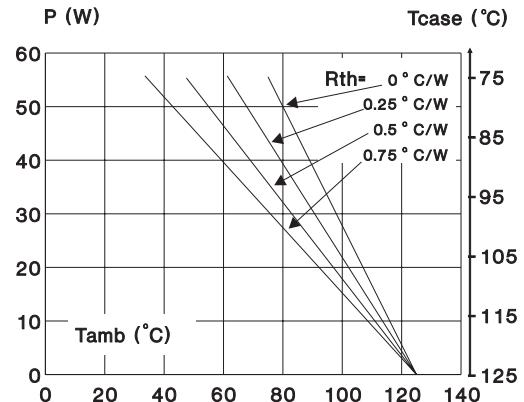


Fig. 4: Relative variation of thermal impedance versus pulse duration.

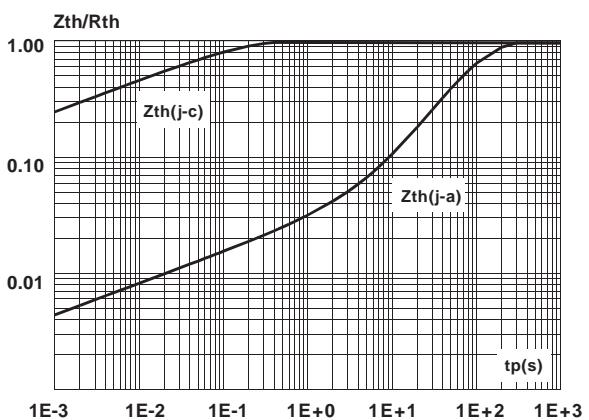
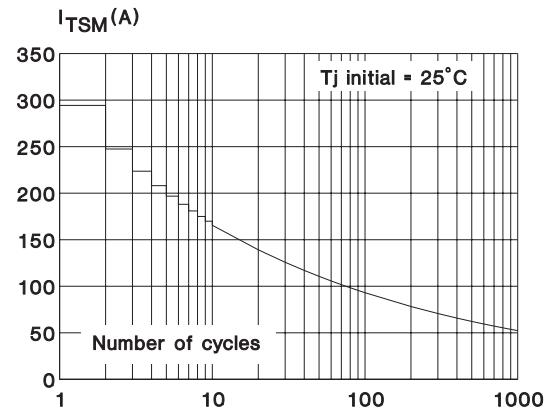


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.



TPDV640 ---> TPDV1240

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

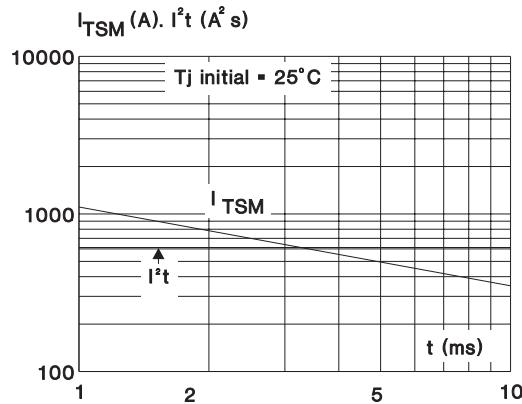


Fig. 8: On-state characteristics (maximum values).

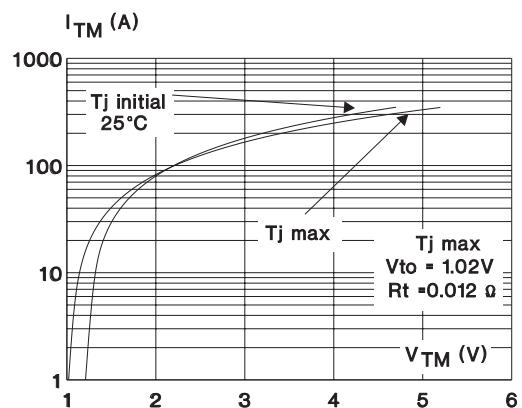
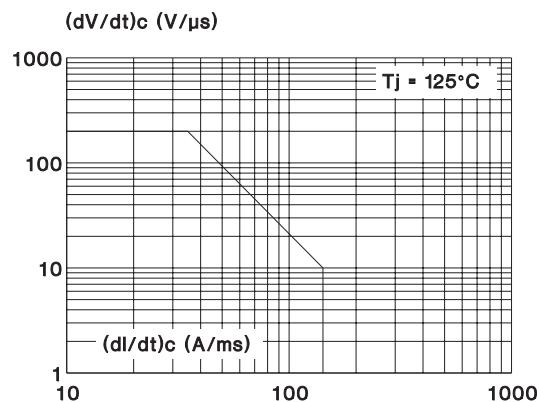


Fig. 9: Safe operating area.



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.

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