



SGS-THOMSON
MICROELECTRONICS

TPDV 625 ---> 1225

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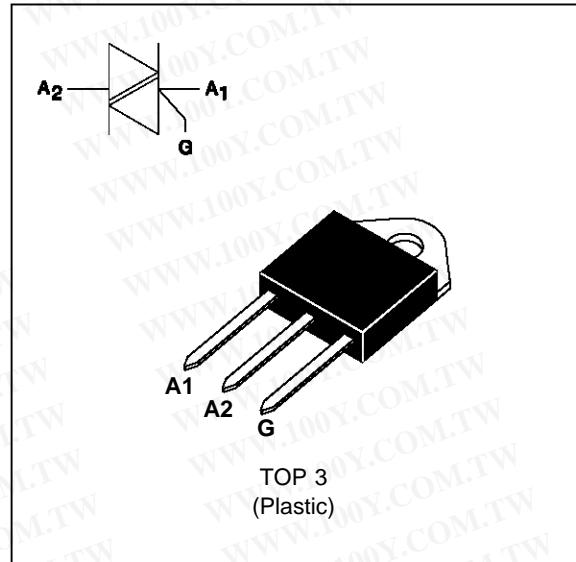
ALTERNISTORS

FEATURES

- HIGH COMMUTATION : > 88 A/ms (400Hz)
- INSULATING VOLTAGE = 2500V(RMS)
(UL RECOGNIZED : EB81734)
- HIGH VOLTAGE CAPABILITY : V_{DRM} = 1200 V

DESCRIPTION

The TPDV 625 ---> 1225 use a high performance passivated glass alternistor technology. Featuring very high commutation levels and high surge current capability, this family is well adapted to power control on inductive load (motor, transformer...)



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
I _T (RMS)	RMS on-state current (360° conduction angle)	25	A
I _{TSM}	Non repetitive surge peak on-state current (T _j initial = 25°C)	tp = 2.5 ms	390
		tp = 8.3 ms	250
		tp = 10 ms	230
I _{2t}	I _{2t} value	265	A _{2s}
dI/dt	Critical rate of rise of on-state current Gate supply : I _G = 500mA diG/dt = 1A/μs	Repetitive F = 50 Hz	20
		Non Repetitive	100
T _{stg} T _j	Storage and operating junction temperature range	- 40 to + 150 - 40 to + 125	°C °C
T _I	Maximum lead temperature for soldering during 10 s at 4.5 mm from case	260	°C

Symbol	Parameter	TPDV				Unit
		625	825	1025	1225	
V _{DRM} V _{RRM}	Repetitive peak off-state voltage T _j = 125 °C	600	800	1000	1200	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-a)	Contact to ambient	50	°C/W
Rth (j-c) DC	Junction to case for DC	1.5	°C/W
Rth (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

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

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	150 mA
V _{GT}	V _D =12V (DC) R _L =33Ω	T _j =25°C	I-II-III	MAX	1.5 V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _j =125°C	I-II-III	MIN	0.2 V
t _{gt}	V _D =V _{DRM} I _G = 500mA dI _G /dt = 3A/μs	T _j =25°C	I-II-III	TYP	2.5 μs
I _L	I _G =1.2 I _{GT}	T _j =25°C	I-III	100 mA	
			II	200	
I _H *	I _T = 500mA gate open	T _j =25°C		TYP	50 mA
V _{TM} *	I _{TM} = 35A tp= 380μs	T _j =25°C		MAX	1.8 V
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated	T _j =25°C T _j =125°C		MAX	0.02 mA
dV/dt *	Linear slope up to V _D =67%V _{DRM} gate open	T _j =125°C		MIN	500 V/μs
(dI/dt) _C *	(dV/dt) _C = 200V/μs (dV/dt) _C = 10V/μs	T _j =125°C		MIN	20 A/ms
					88

* 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)

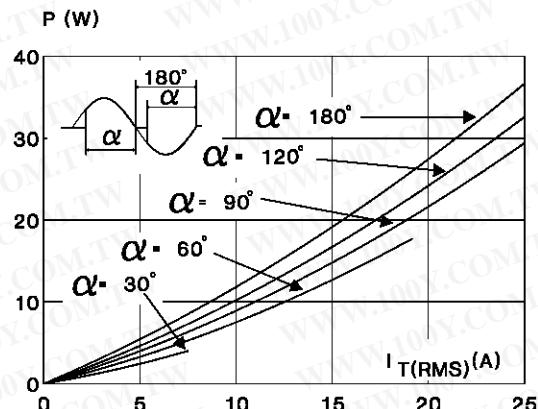


Fig.3 : RMS on-state current versus case temperature.

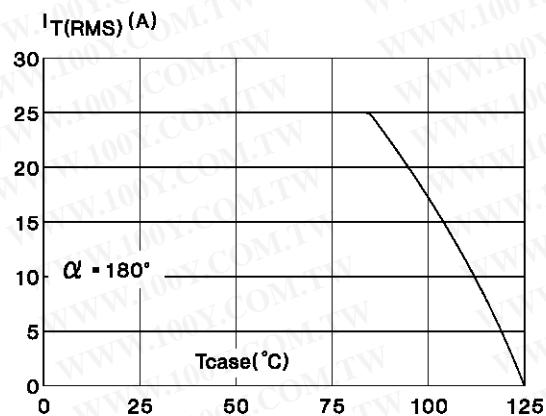


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

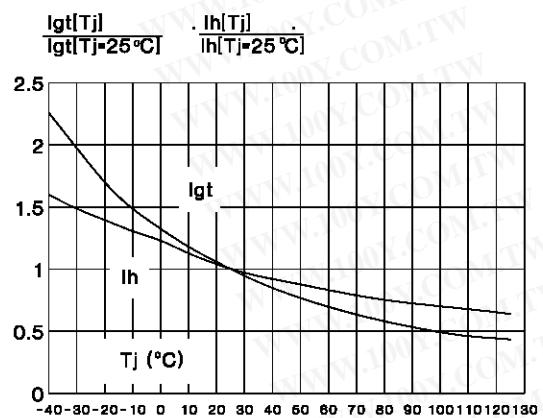


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

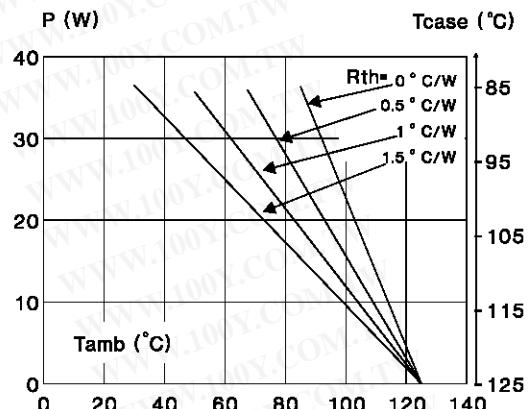


Fig.4 : Relative variation of thermal impedance versus pulse duration.

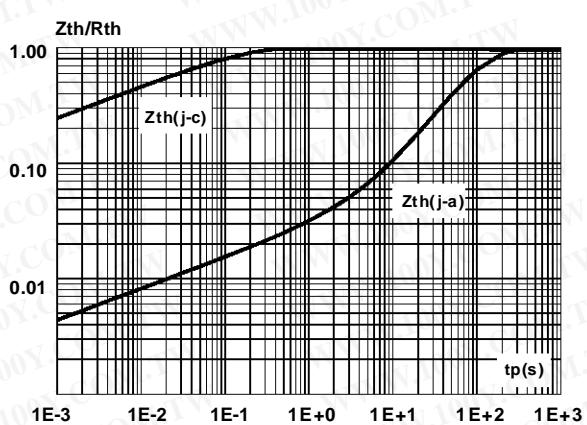


Fig.6 : Non Repetitive surge peak on-state current versus number of cycles.

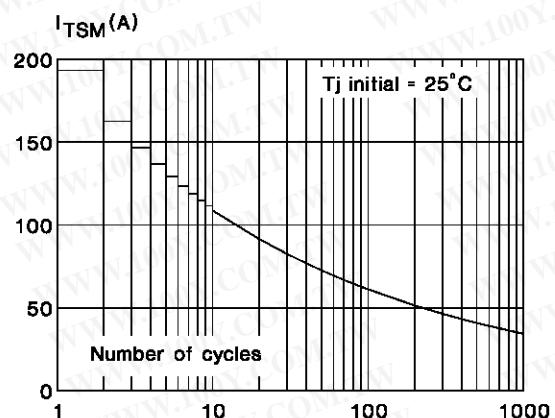


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

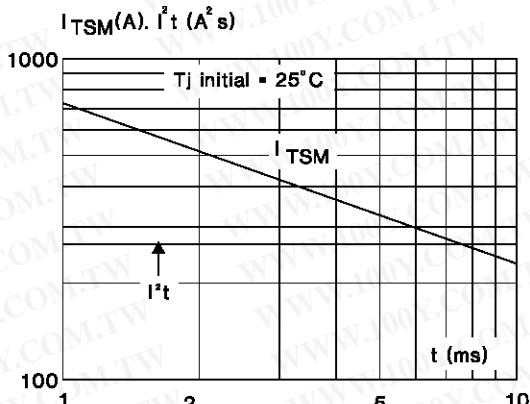


Fig.9 : Safe operating area.

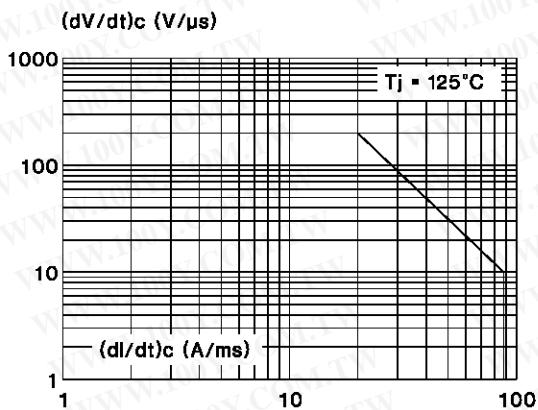
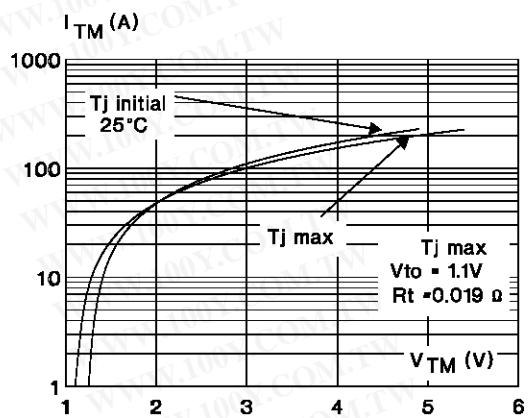
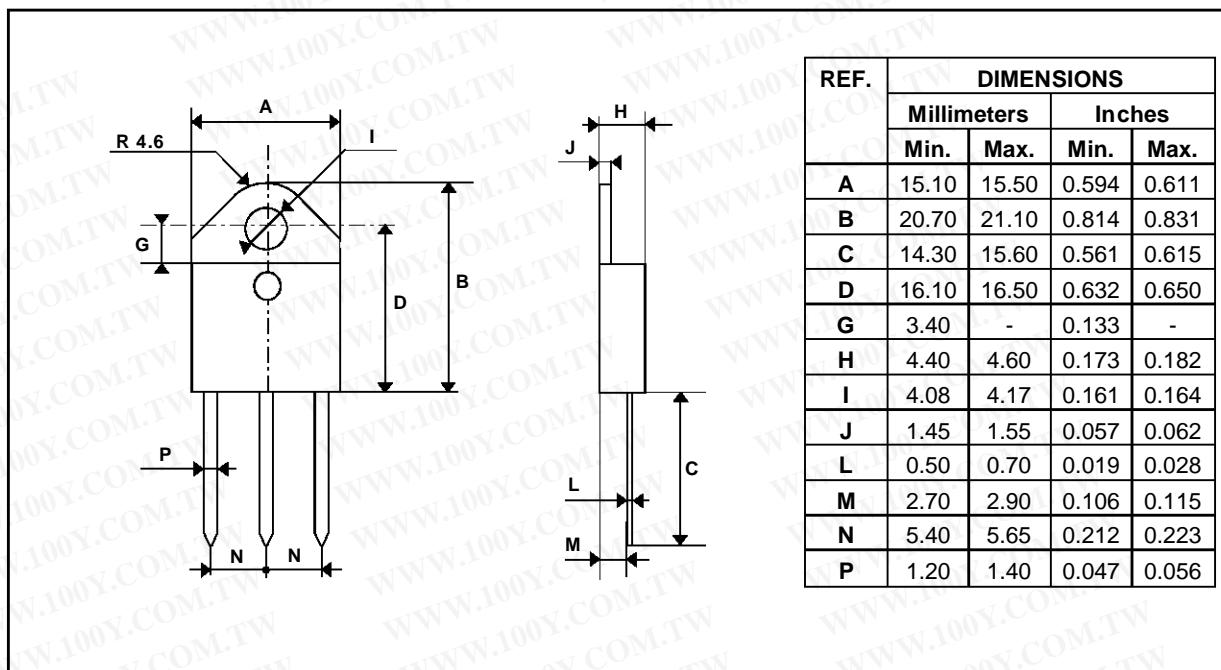


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : C

Marking : type number

Weight : 4.7 g

Recommended torque value : 0.8 m.N.

Maximum torque value : 1 m.N.

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