

**Product Summary**

Symbol	Value	Unit
$I_{T(AV)}$	2.0	A
$V_{DRM} V_{RRM}$	600	V
$I_{GT}$	200	$\mu A$

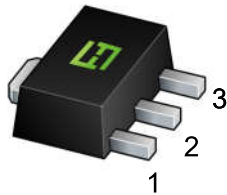
**Feature**

With high ability to withstand the shock loading of large current, Provide high dv/dt rate with strong resistance to electromagnetic interference.

**Application**

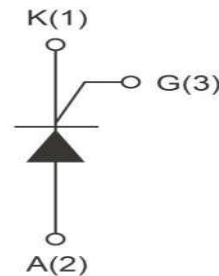
Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.

**Package**

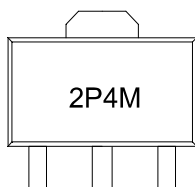


**SOT-89-3L**

**Circuit diagram**



**Marking**



### Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V <sub>DRM</sub>	600	V
Repetitive peak reverse voltage	V <sub>R RM</sub>	600	V
RMS on-state current	I <sub>T(RMS)</sub>	3	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I <sub>TSM</sub>	20	A
I <sup>2</sup> t value for fusing (tp=10ms)	I <sup>2</sup> t	2	A <sup>2</sup> s
Critical rate of rise of on-state current (I <sub>G</sub> = 2 × I <sub>GT</sub> )	dI <sub>T</sub> /dt	50	A/μs
Peak gate current	I <sub>GM</sub>	0.2	A
Average gate power dissipation	P <sub>G(AV)</sub>	0.1	W
Junction Temperature	T <sub>J</sub>	-40 ~ +110	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +150	°C

### Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Value		Unit
			Min	Max	
Gate trigger current	I <sub>GT</sub>	V <sub>D</sub> = 12V I <sub>T</sub> = 10mA T <sub>j</sub> = 25°C	10	200	μA
Gate trigger voltage	V <sub>GT</sub>		-	0.8	V
Gate non-trigger voltage	V <sub>GD</sub>	V <sub>D</sub> = 1/2V <sub>DRM</sub> T <sub>j</sub> = 110°C	0.2	-	V
latching current	I <sub>L</sub>	V <sub>D</sub> = 12V I <sub>G</sub> = 0.5mA R <sub>GK</sub> = 1kΩ T <sub>j</sub> = 25°C	-	3	mA
Holding current	I <sub>H</sub>		-	4	mA
Critical-rate of rise of commutation voltage	dV <sub>D</sub> /dt	V <sub>D</sub> = 2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> = 110°C	10	-	V/μs
<b>STATIC CHARACTERISTICS</b>					
Forward "on" voltage	V <sub>TM</sub>	I <sub>TM</sub> = 4A tp = 380μs	-	1.55	V
Repetitive Peak Off-State Current	I <sub>DRM</sub>	V <sub>D</sub> = V <sub>DRM</sub> V <sub>R</sub> = V <sub>R RM</sub>	T <sub>j</sub> = 25°C		μA
Repetitive Peak Reverse Current	I <sub>R RM</sub>		T <sub>j</sub> = 110°C		mA
<b>THERMAL RESISTANCES</b>					
Thermal resistance	R <sub>th(j-c)</sub>	Junction to case	TYP.	20	°C/W
	R <sub>th(j-a)</sub>	Junction to ambient	TYP.	60	°C/W

**Typical Characteristics**

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

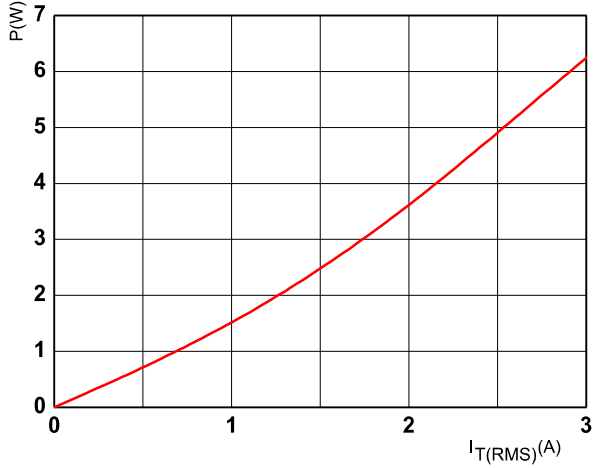


FIG.2: RMS on-state current versus case temperature (full cycle)

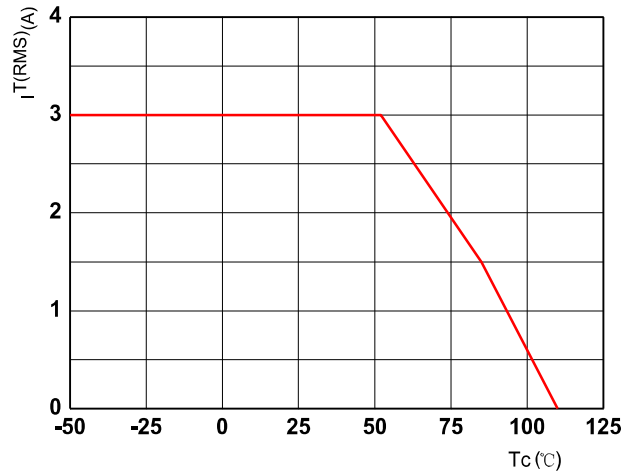


FIG.3: Surge peak on-state current versus number of cycles

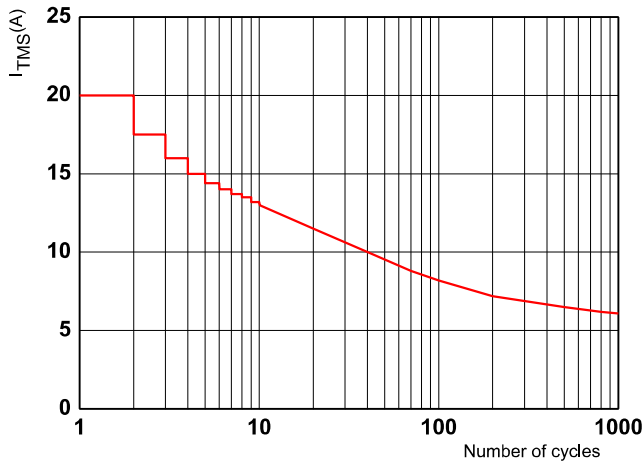


FIG.4: On-state characteristics (maximum values)

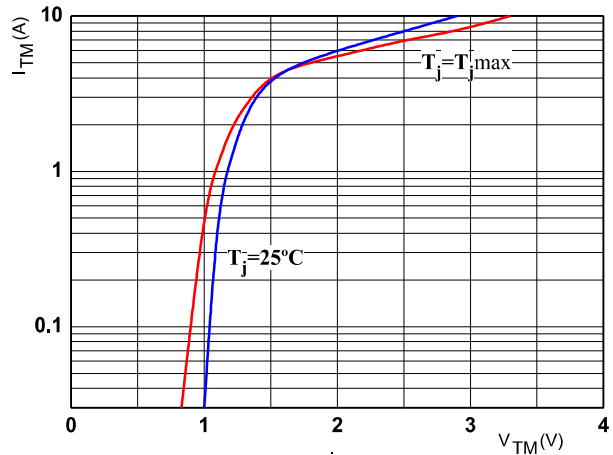


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$

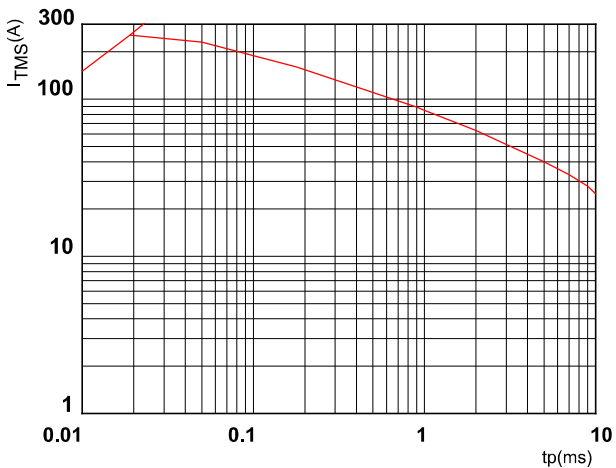
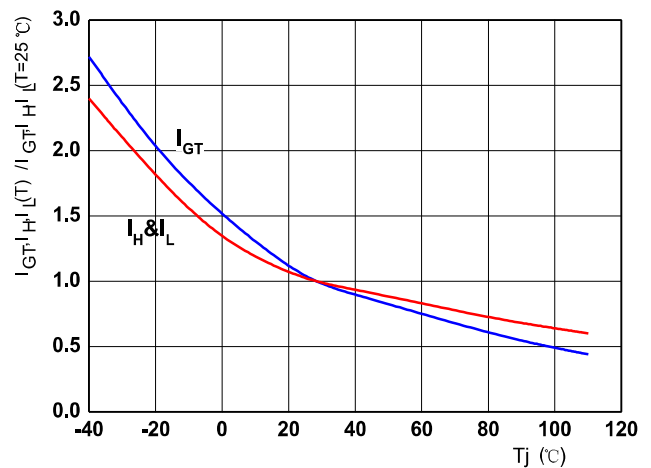
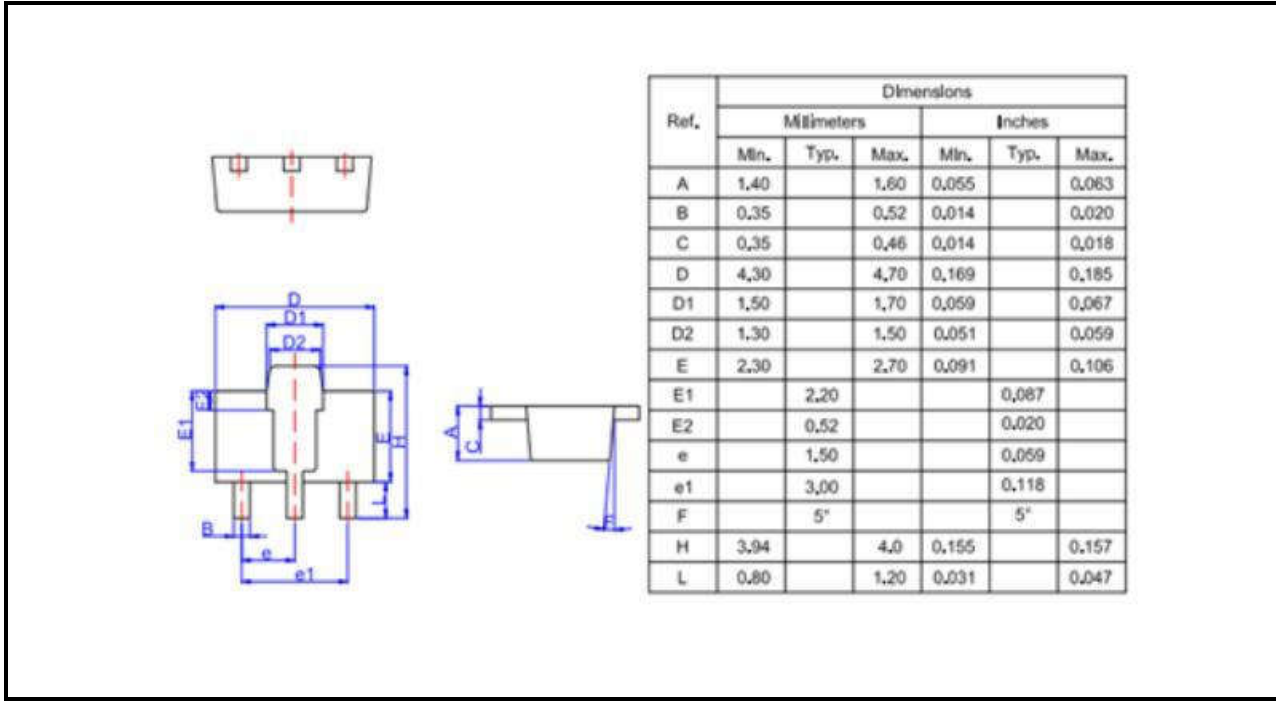


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



**SOT-89-3L Package Information**



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