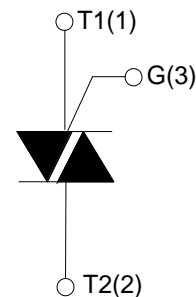


## 12A TRIACs

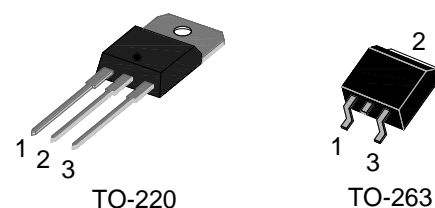
### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	600 and 800 and 1200	V



### Applications

Washing machine, vacuums,  
massager, solid state relay, AC  
Motor speed regulation and so on.



### ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		$T_{stg}$	-40-150	°C
Operating junction temperature range		$T_j$	-40-125	°C
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )		$V_{DRM}$	600/800/1200	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )		$V_{RRM}$	600/800/1200	V
Non repetitive surge peak Off-state voltage		$V_{DSM}$	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		$V_{RSM}$	$V_{RRM} + 100$	V
RMS on-state current	TO-220 ( $T_C=90^\circ\text{C}$ )	$I_{T(RMS)}$	12	A
	TO-263 ( $T_C=115^\circ\text{C}$ )			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )		$I_{TSM}$	120	A

I <sup>2</sup> t value for fusing (tp=10ms)	I <sup>2</sup> t	72	A <sup>2</sup> s
Critical rate of rise of on-state current (I <sub>G</sub> =2×I <sub>GT</sub> )	dI/dt	50	A/μs
Peak gate current	I <sub>GM</sub>	4	A
Average gate power dissipation	P <sub>G(AV)</sub>	1	W
Peak gate power	P <sub>GM</sub>	5	W

**ELECTRICAL CHARACTERISTICS** (T<sub>j</sub>=25°C unless otherwise specified)

**3 Quadrants**

Symbol	Test Condition	Quadrant		Value				Unit
				BW	CW	SW	TW	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I - II - III	MAX	50	35	10	5	mA
V <sub>GT</sub>		I - II - III	MAX	1.3				V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> T <sub>j</sub> =125°C R <sub>L</sub> =3.3KΩ	I - II - III	MIN	0.2				V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I - III	MAX	70	50	25	10	mA
		II		80	60	30	15	
I <sub>H</sub>	I <sub>T</sub> =100mA		MAX	60	40	15	10	mA
dV/dt	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C		MIN	1000	500	40	20	V/μs
(dV/dt) <sub>c</sub>	without snubber T <sub>j</sub> =125°C		MIN	12	6.5	5.0	3.5	V/μs

**4 Quadrants**

Symbol	Test Condition	Quadrant		Value		Unit
				B	C	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I - II - III	MAX	50	25	mA
		IV		70	50	
V <sub>GT</sub>		ALL	MAX	1.3		V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> T <sub>j</sub> =125°C R <sub>L</sub> =3.3KΩ	ALL	MIN	0.2		V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I - III - IV	MAX	50	40	mA
		II		100	80	
I <sub>H</sub>	I <sub>T</sub> =100mA		MAX	50	25	mA

dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$	MIN	400	200	V/ $\mu\text{s}$
(dV/dt) <sub>c</sub>	without snubber $T_j=125^\circ\text{C}$	MIN	/	/	V/ $\mu\text{s}$

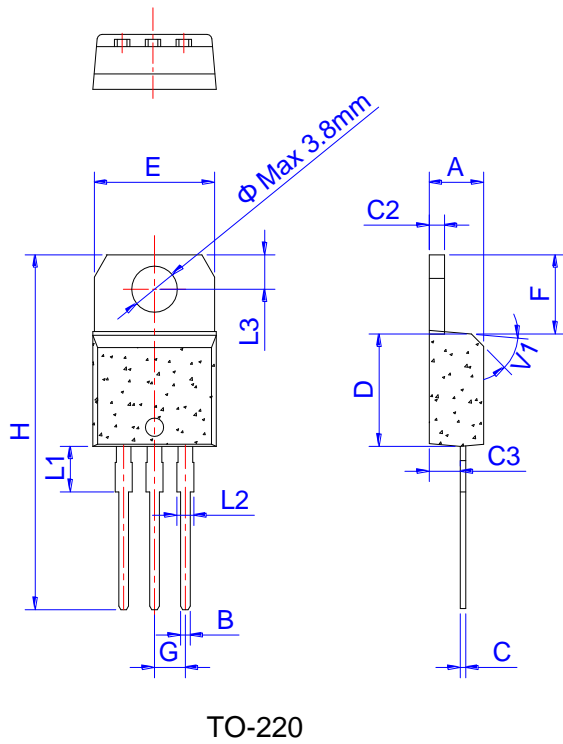
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM}=17\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.55	V
$I_{DRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	1	mA

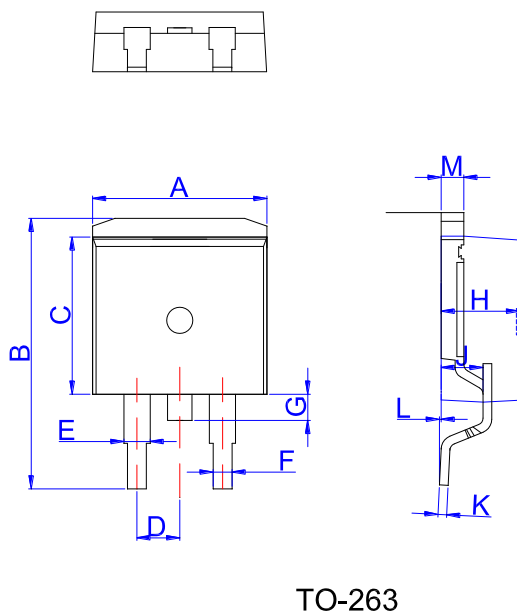
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220	2.3	$^\circ\text{C/W}$
			1.4	
		TO-263	3.9	
			0.95	

## PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053