

T04 4A TRIACs

FEATURES

- Glass Passivated Junctions
- High voltage and surge capability
- Low Thermal Resistance and Durability
- Triggering in three quadrants

APPLICATIONS

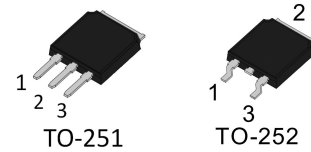
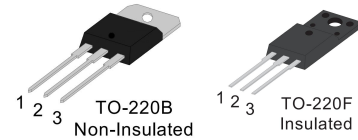
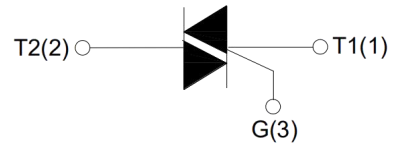
- Static relays
- Heating regulation
- In-duction motor starting circuits
- Phase control operation in light dimmers
- Motor speed controllers

Parameters Summary

VD/VR:600/800V

IT(RMS):4A

IGT :05 to50mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junctiontemperature range	Tstg	-40~150	°C
Operating junction temperature range	Tj	-40~150	°C
Repetitive peak off-state voltage (T =25°C)	V _{DRM}	600/800	V
Repetitive peak reverse voltage (T =25°C)	V _{RRM}	600/800	V
RMS on-state current	TO-220B(TC=95°C)	4	A
	TO-220F(TC=80°C)		
	TO-251/TO-252(TC=86°C)		
	SOT-223 (TC=70°C)		
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I _{TSM}	40	A
I²t value for fusing (tp=10ms)	I²t	8	A²S
Critical rate of rise of on-state current(I =2×I _{GT})	di/dt	50	A/μS
Peak gate current	I _{GM}	4	A
Peakgate power dissipation	P _{GM}	5	W
Average gate power dissipation	P _{G(AV)}	1	W

Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case (DC)	TO-220B	2.5
		TO-220F	3.3
		TO-251/TO-252	2.8
		SOT-223	4.1

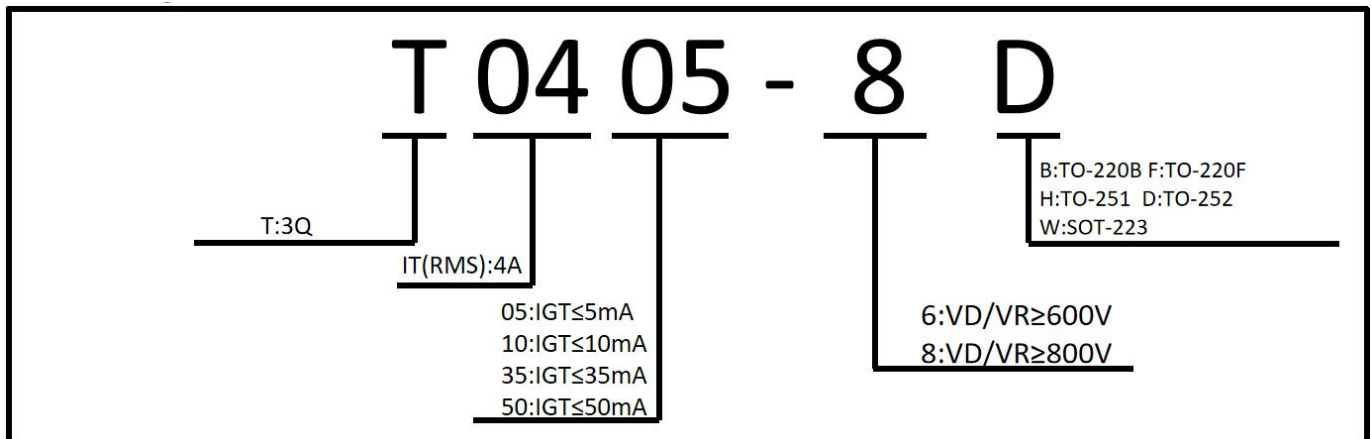
ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant		Value				Unit
				5	10	35	50	
I_{GT}	$V_D=12V, I_T=0.1A, T_j=25^\circ C$	I II III	MAX.	5	10	35	50	mA
V_{GT}	$^\circ C$	I II III	MAX.	1.5				V
V_{GD}	$V_D=V_{DRM}, T_j=125^\circ C$	I II III	MIN.	0.2				V
I_L	$I_G=1.2I_{GT}$	I-III	MAX.	10	25	50	70	mA
		II		15	35	80	100	
I_H	$I_T=100mA$		MAX.	10	20	35	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN.	50	100	400	1000	V/ μs

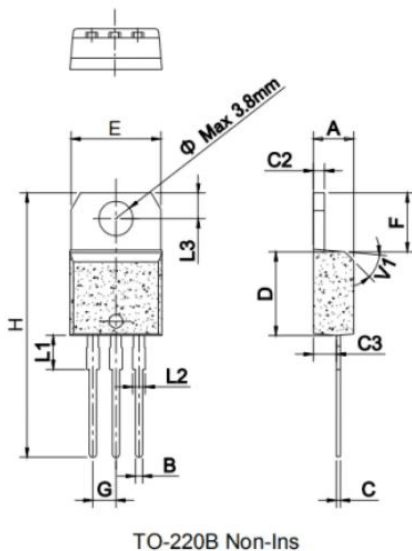
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=5.5A, t_p=380\mu s$	$T_j=25^\circ C$	1.5	V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^\circ C$	10	μA
I_{RRM}		$T_j=125^\circ C$	1.0	mA

Ordering Information Scheme

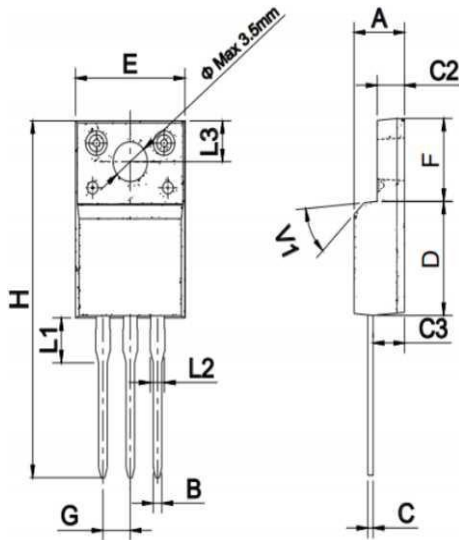


TO-220B Package Mechanical Data



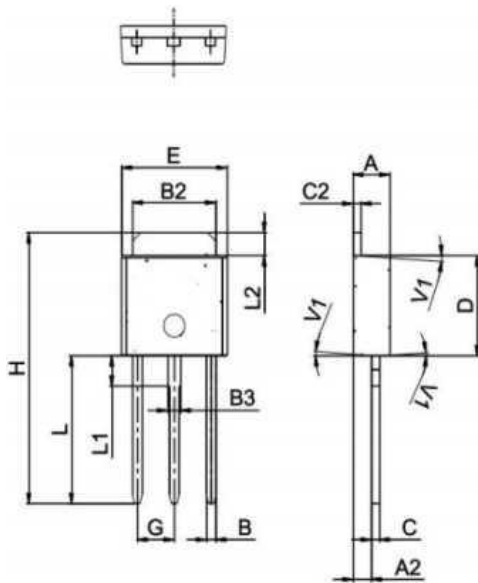
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.10		4.30	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.25		7.05	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1					0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

TO-220F Package Mechanical Data



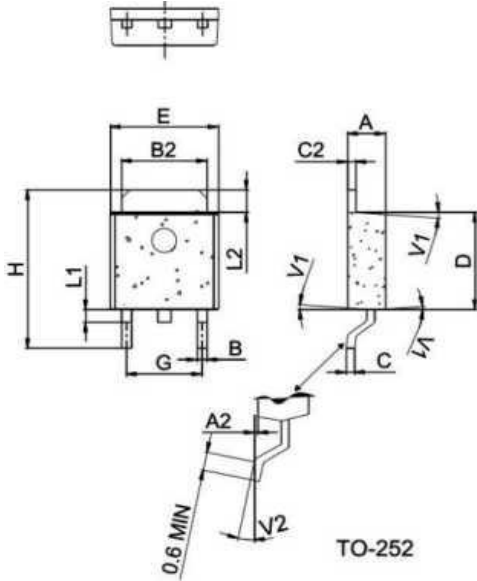
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.50		3.10	0.096		0.108
C3	2.40		2.80	0.102		0.118
D	8.60		8.90	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.70		7.50	0.252		0.268
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

TO-251 Package Mechanical Data



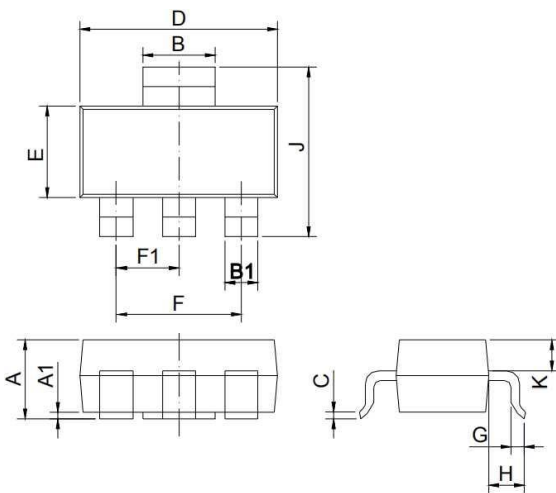
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.50	0.035		0.059
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.66		0.94	0.025		0.037
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30				
H	15.25		15.65	0.600		0.616
L	7.8		8.8	0.307		0.346
L1	1.50		1.90	0.059		0.075
L2	1.10		1.50	0.043		0.059
V1		4			4	

TO-252 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.71		0.99	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.60	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
V1		4				
V2	0		8	0		8

SOT-223 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
H	1.5	1.75	2	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K		0.9			0.035	

FIG.1 Maximum power dissipation versus on-state current

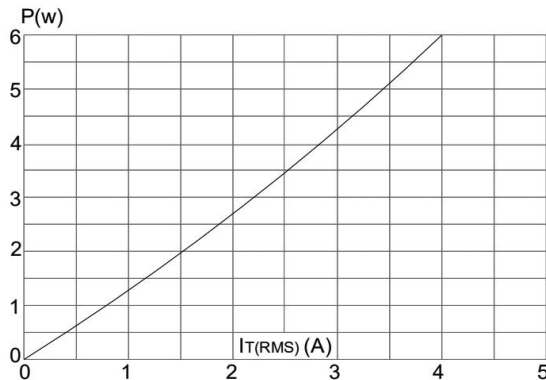


FIG.2: on-state current versus case temperature

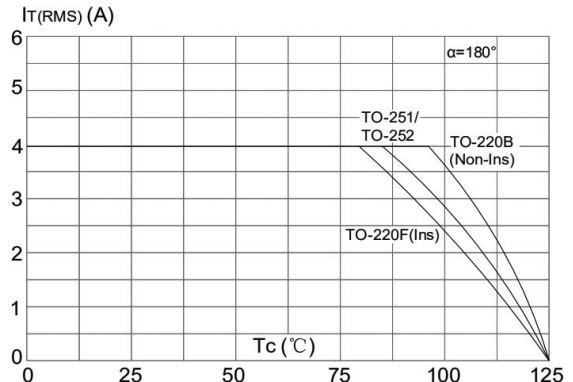


FIG.3: Surge peak on-state current versus number of cycles

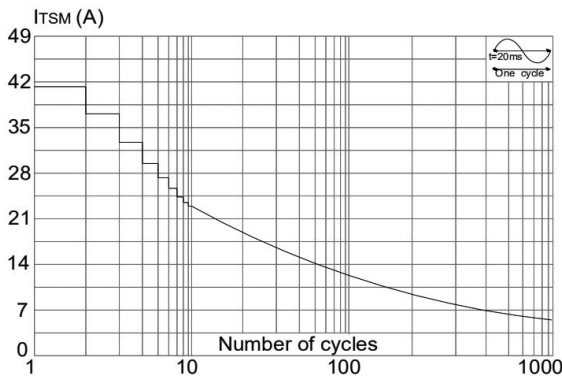


FIG.4: On-state characteristics (maximum values)

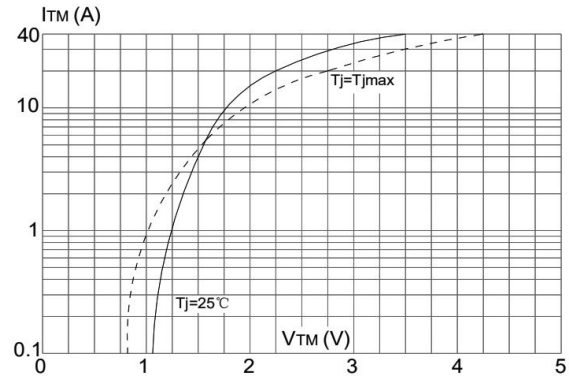


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of $I_2 t$ ($di/dt < 50A/\mu s$)

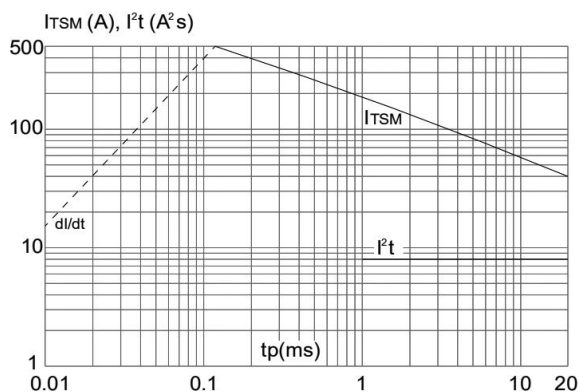


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

