

## F02 Series 2A TRIACs

### FEATURES

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

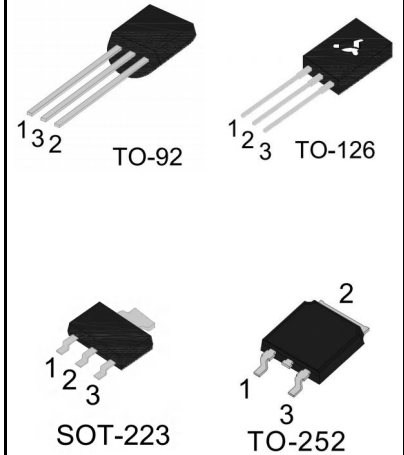
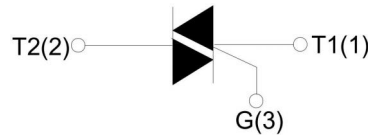
### APPLICATIONS

- 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):2A IGT:5 to 10mA



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	Tstg	-40 ~150	°C
Operating junction temperature range	Tj	-40~125	°C
Repetitive peak off-state voltage (T =25°C)	V <sub>DRM</sub>	600/800	V
Repetitive peak reverse voltage (T =25°C)	V <sub>RRM</sub>	600/800	V
Non repetitive surge peak Off-state voltage	V <sub>DSM</sub>	V <sub>DRM</sub> +100	V
Non repetitive peak reverse voltage	V <sub>RSM</sub>	V <sub>RRM</sub> +100	V
RMS on-state current	TO-92(TC=90°C)	2	A
	TO-126(TC=103°C)		
	SOT-223(TC=103°C)		
	TO-252(TC=103°C)		
Non repetitive surge peak on-state current (180° conduction angle, 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 =2×IGT, tr ≤ 100 ns)	di/dt	50	A/μS
Peak gate current	I <sub>GM</sub>	2	A
Average gate power dissipation	P <sub>G(AV)</sub>	1	W

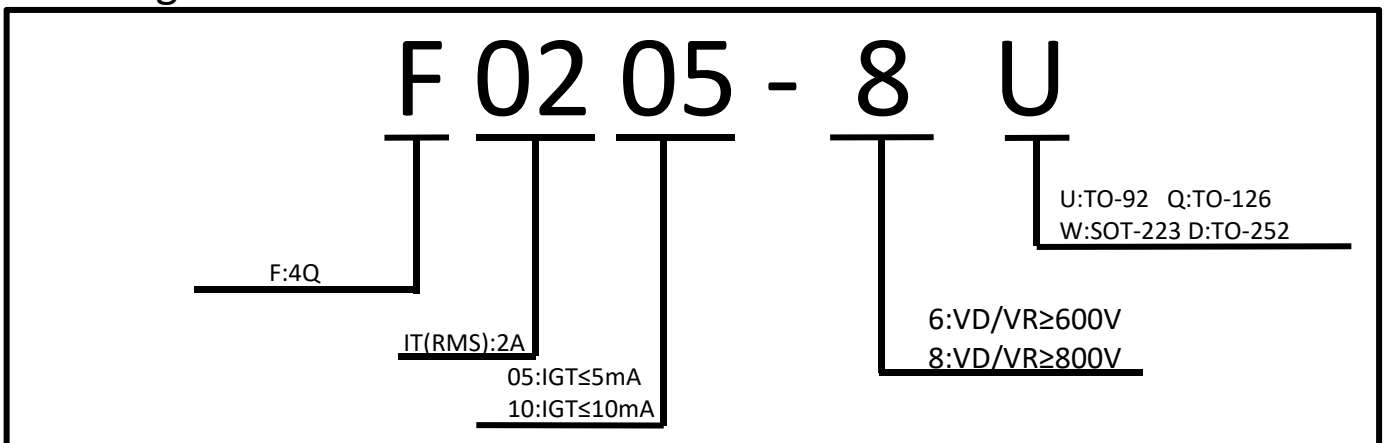
### Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case (AC)	TO-92	20
		TO-126	4.5
		SOT-223	5.8
		TO-252	4.5

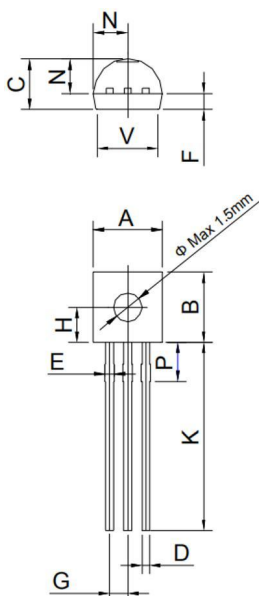
ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)						
Symbol	Test Condition	Quadrant		Value		Unit
				05	10	
$I_{GT}$	$V_D=12V$	I-II-III	MAX	5	10	mA
		IV		10	25	
$V_{GT}$		ALL	MAX	1.3		V
$V_{GD}$	$V_D=V_{DRM}$ $T_j=125^\circ C$	ALL	MIN	0.2		V
$I_L$	$I_G=1.2I_{GT}$	I-III	MAX	5	20	mA
		II-IV		10	35	
$I_H$	$I_T=200mA$		MAX	5	20	mA
$dV/dt$	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	15	100	V/ $\mu s$

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX. )	Unit
$V_{TM}$	$I_{TM}=2.8A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.55	V
$I_{DRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	5	$\mu A$
$I_{RRM}$		$T_j=125^\circ C$	1	mA

### Ordering Information Scheme



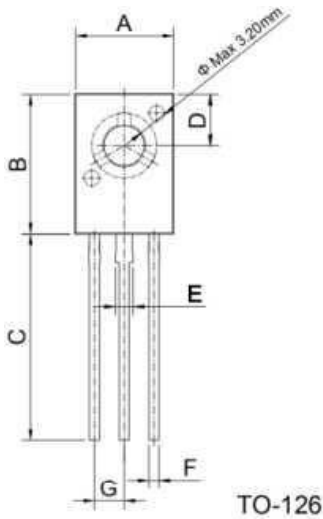
### TO-92 Package Mechanical Data



TO-92

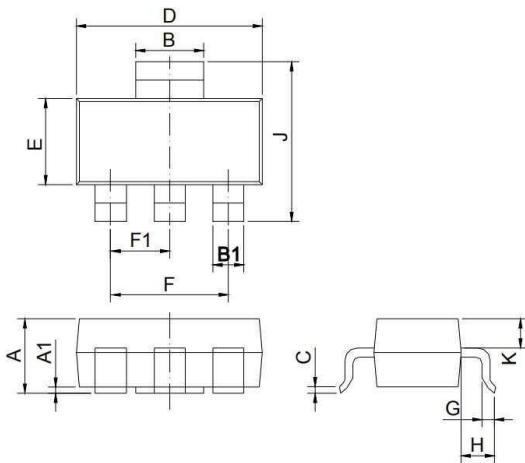
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		0.205
B	4.32		5.33	0.170		0.210
C	3.18		4.19	0.125		0.165
D	0.254		0.506	0.016		0.021
E	0.30		0.70	0.024		0.031
F	.	1.30	.	.	0.051	-
G	.	1.27	.	.	0.050	-
H	.	2.30	.	.	0.091	-
J	0.30		0.50	0.011		0.020
K	12.70		15.0	0.500		0.591
N	2.04		2.66	0.080		0.105
P	1.86		2.06	0.073		0.081
V	.		4.50	.		0.169

### TO-126 Package Mechanical Data



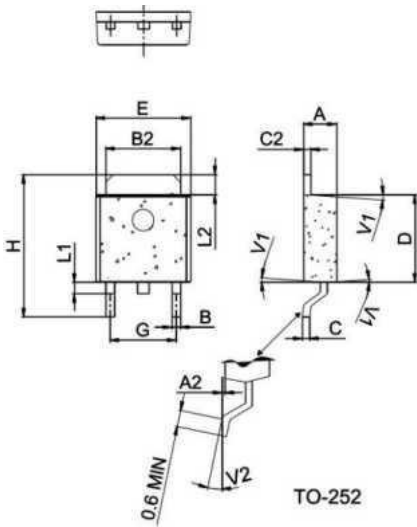
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.43		8.23	0.292		0.324
B	10.07		11.27	0.396		0.443
C	15.4		17.4	0.606		0.685
D	0.80		4.20	0.149		0.165
E	1.17		1.47	0.046		0.058
F	0.48		0.88	0.018		0.034
G		2.29			0.090	
H	2.50		2.90		0.090	
J	1.10		1.50	0.043		0.059
K	0.45		0.60	0.018		0.024

### 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	

### 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

FIG.1 Maximum power dissipation versus on-state current

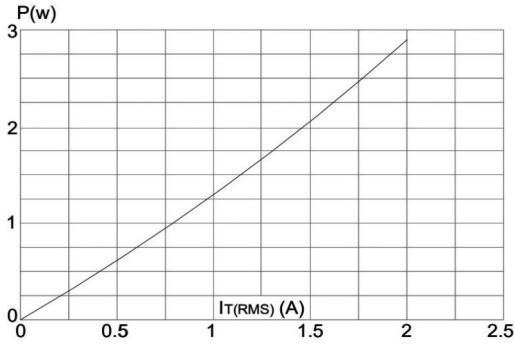


FIG.2: on-state current versus case temperature

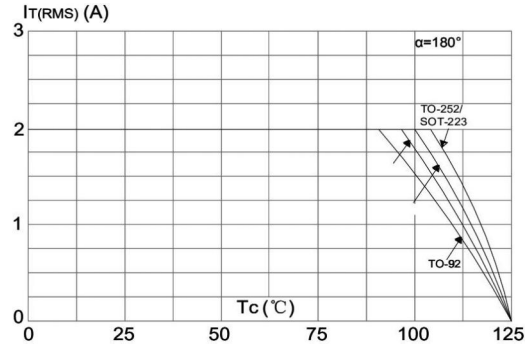


FIG.3: Surge peak on-state current versus number of cycles

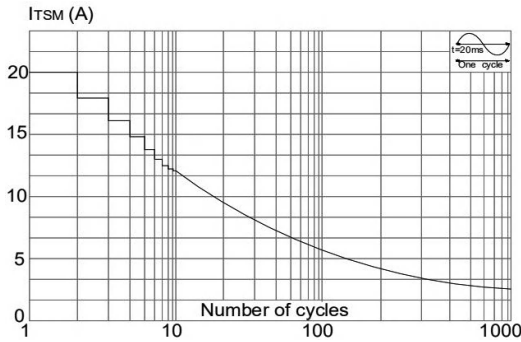


FIG.4: On-state characteristics (maximum values)

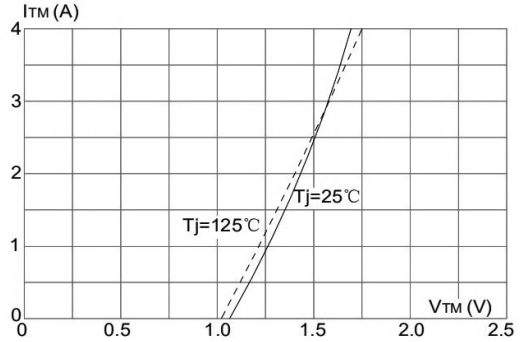


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I_2 t (di/dt < 50A/\mu s)$

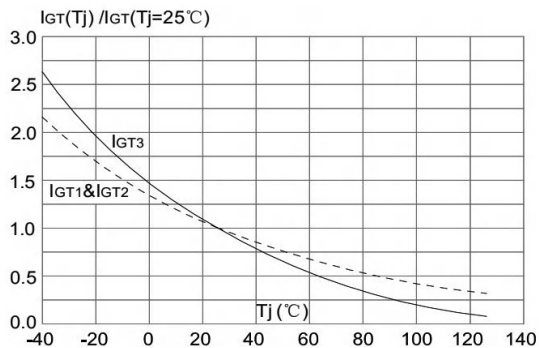
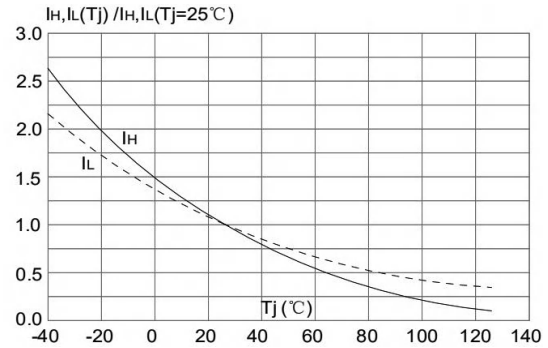


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature



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