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

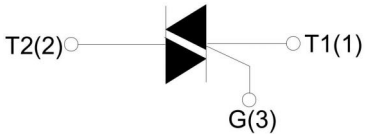
SMD Device Halogen Free

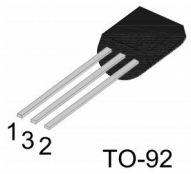
Pb-free

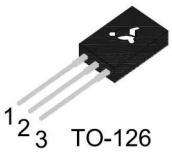
RoHS COMPLIANT

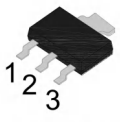
Parameters Summary

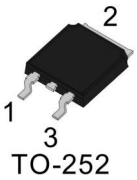
VD/VR:600/800V IT(RMS):2A IGT:5 to 10mA











ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40 ~150	℃
Operating junction temperature range		Tj	-40~125	℃
Repetitive peak off-state voltage (T =25℃)		V_{DRM}	600/800	V
Repetitive peak reverse voltage (T =25℃)		V_{RRM}	600/800	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-92(TC=90℃)	$I_{T(RMS)}$	2	A
	TO-126(TC=103℃)			
	SOT-223(TC=103℃)			
	TO-252(TC=103℃)			
Non repetitive surge peak on-state current (180° conduction angle, F=50Hz)		I_{TSM}	20	A
I^2t value for fusing (tp=10ms)		I^2t	2	A^2S
Critical rate of rise of on-state current (I =2×IGT, tr ≤ 100 ns)		di/dt	50	A/μS
Peak gate current		I_{GM}	2	A
Average gate power dissipation		$P_{G(AV)}$	1	W

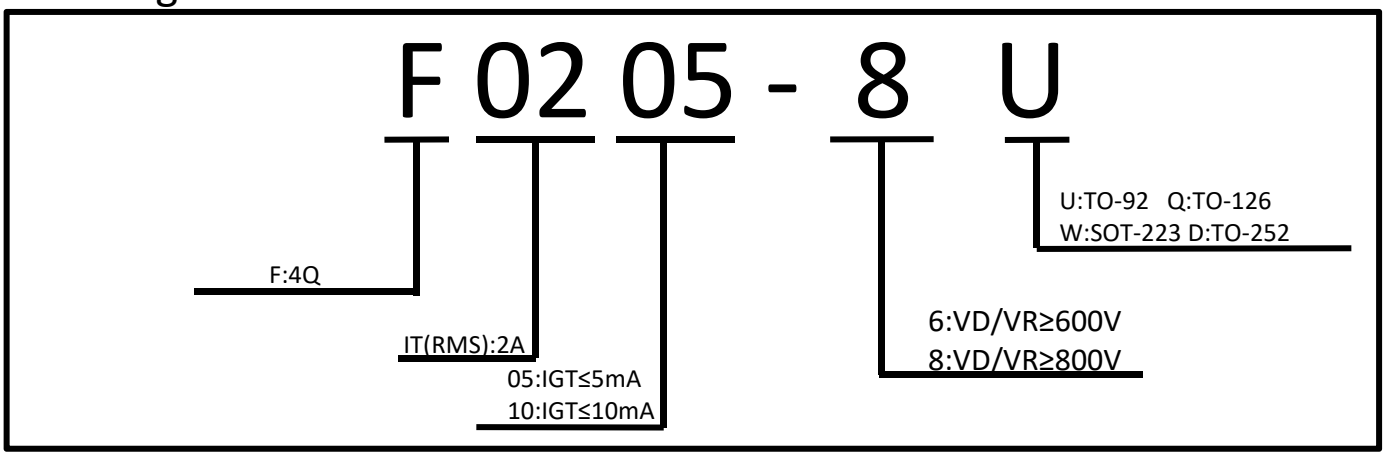
Thermal Resistances

Symbol	Parameter		Value	Unit
Rth(j-c)	Junction to case (AC)	TO-92	20	℃/W
		TO-126	4. 5	
		SOT-223	5. 8	
		TO-252	4. 5	

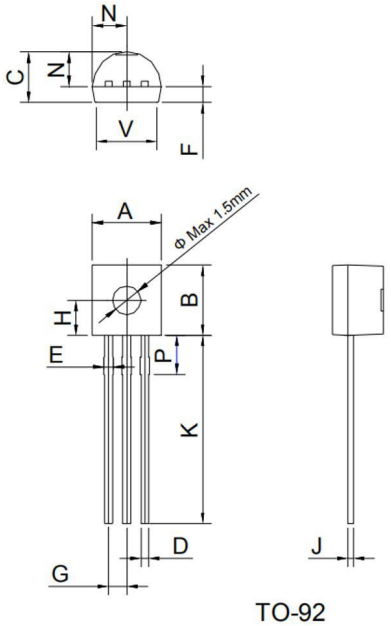
ELECTRICAL CHARACTERISTICS (T=25℃unless otherwise specified)						
Symbol	Test Condition	Quadrant		Value		Unit
				05	10	
I_{GT}	VD=12V	I-II-III	MAX	5	10	mA
		IV		10	25	V
V_{GT}		ALL	MAX	1.3		
V_{GD}	VD=VDRM Tj=125℃	ALL	MIN	0.2		V
I_L	I_G=1.2I_{GT}	I-III	MAX	5	20	mA
		II-IV		10	35	
I_H	IT=200mA		MAX	5	20	mA
dV/dt	V_D=2/3V_{DRM} Gate Open Tj=125℃		MIN	15	100	V/μs

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	ITM =2.8A tp=380μs	Tj =25℃	1.55	V
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	Tj =25℃	5	μA
I_{RRM}		Tj =125℃	1	mA

Ordering Information Scheme



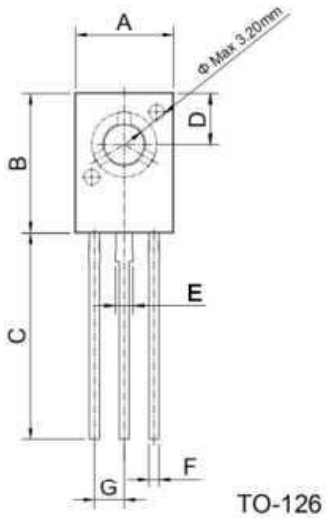
TO-92 Package Mechanical Data



TO-92

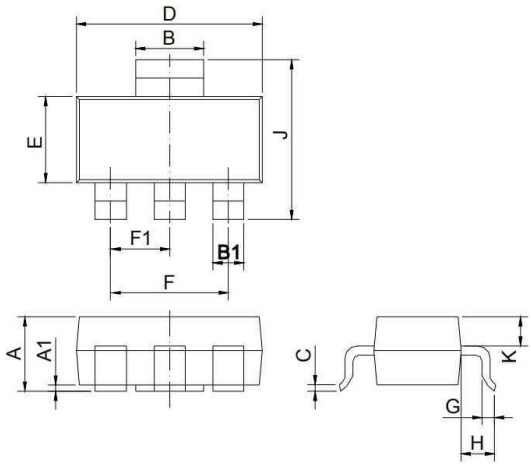
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		0.205
B	4.32		5.33	0.170		0.210
C	3.18		4.19	0.125		0.165
D	0.254		0.506	0.016		0.021
E	0.30		0.70	0.024		0.031
F	.	1.30	.	.	0.051	-
G	.	1.27	.	.	0.050	-
H	.	2.30	.	.	0.091	-
J	0.30		0.50	0.011		0.020
K	12.70		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



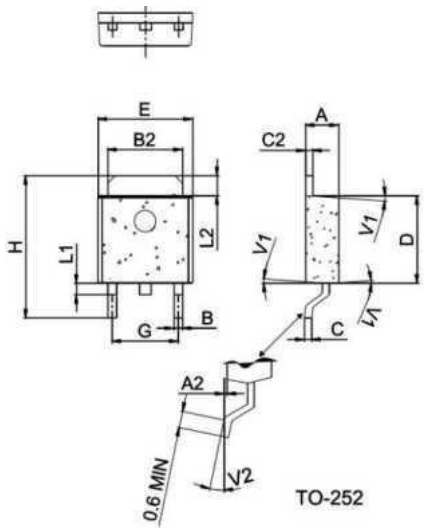
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.43		8.23	0.292		0.324
B	10.07		11.27	0.396		0.443
C	15.4		17.4	0.606		0.685
D	0.80		4.20	0.149		0.165
E	1.17		1.47	0.046		0.058
F	0.48		0.88	0.018		0.034
G		2.29			0.090	
H	2.50		2.90		0.090	
J	1.10		1.50	0.043		0.059
K	0.45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

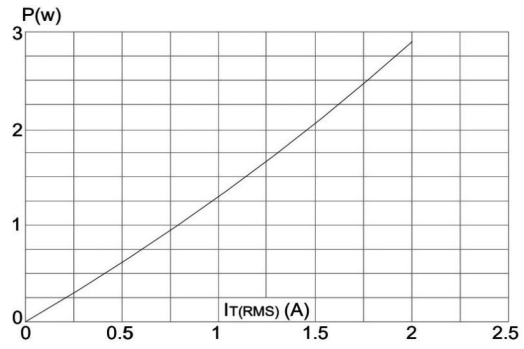


FIG.2: on-state current versus case temperature

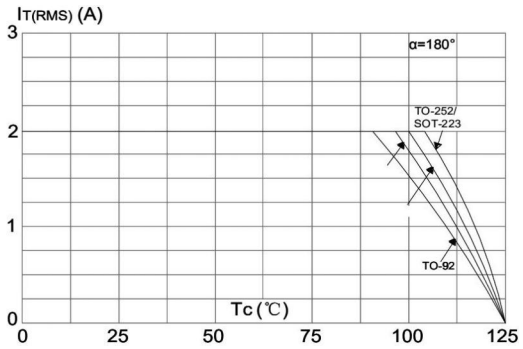


FIG.3: Surge peak on-state current versus number of cycles

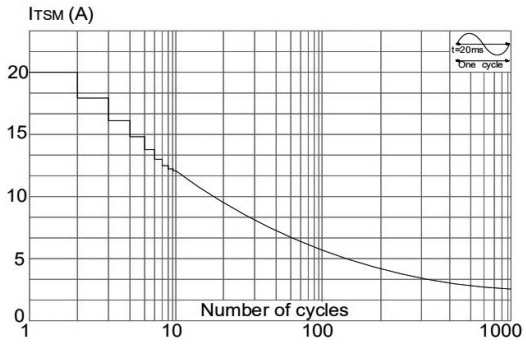


FIG.4: On-state characteristics (maximum values)

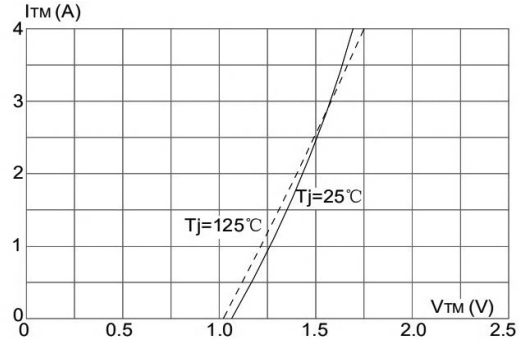
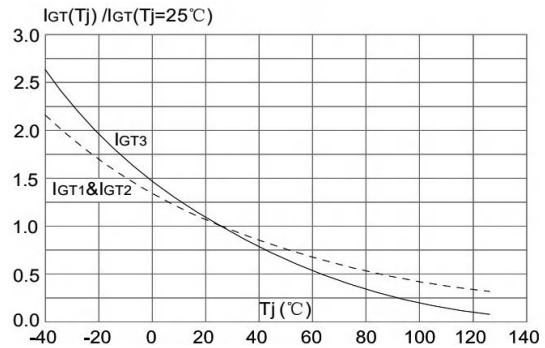
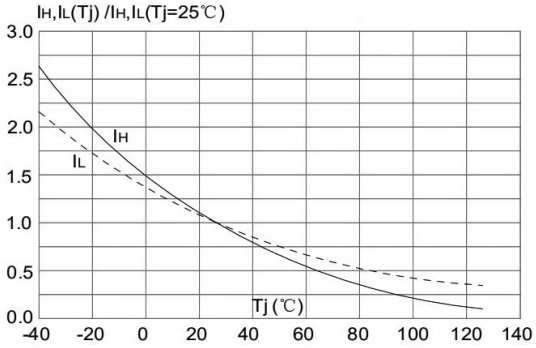


FIG.5: Non-repetitive surge peak on-state currentfor a sinusoidal pulse with width tp<10ms, and corresponding value of I2 t (dI/dt < 50A/µs)

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





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