



SOT-89K Plastic-Encapsulate Thyristors

CT401J 4Q TRIACs

MAIN CHARACTERISTICS

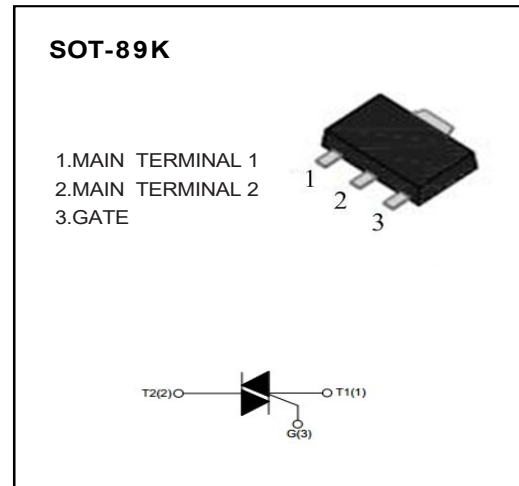
$I_{T(RMS)}$		1A
V_{DRM}/V_{RRM}	CT401J-600T/S	600V
	CT401J-800T/S	800V
V_{TM}		1.55V

FEATURES

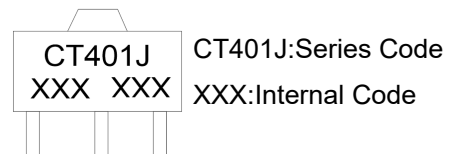
- NPNPN 5-layer Structure TRIACs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- High Junction Temperature
- Good Commutation Performance

APPLICATIONS

- Heater Control
- Motor Speed Controller
- Mixer



MARKING



ABSOLUTE RATINGS ($T_a=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit	
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	$T_j=25^{\circ}C$	CT401J-600T/S	600	V
			CT401J-800T/S	800	V
$I_{T(RMS)}$	RMS on-state current	SOT- 89K($T_c \leq 70^{\circ}C$), Fig. 1,2	1	A	
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave , $T_j(\text{init})=25^{\circ}C$, $t_p=20\text{ms}$; Fig. 3,5	10	A	
I^2t	I^2t value	$t_p=10\text{ms}$	1.28	A^2s	
di_T/dt	Critical rate of rise of on-state current	$I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=125^{\circ}C$	I - II -III	50	$A/\mu s$
			IV	10	
I_{GM}	Peak gate current	$t_p=20\mu s$, $T_j=125^{\circ}C$	2	A	
$P_{G(AV)}$	Average gate power	$T_j=125^{\circ}C$	0.5	W	
T_{STG}	Storage temperature		-40~+150	$^{\circ}C$	
T_j	Operating junction temperature		-40~+125		

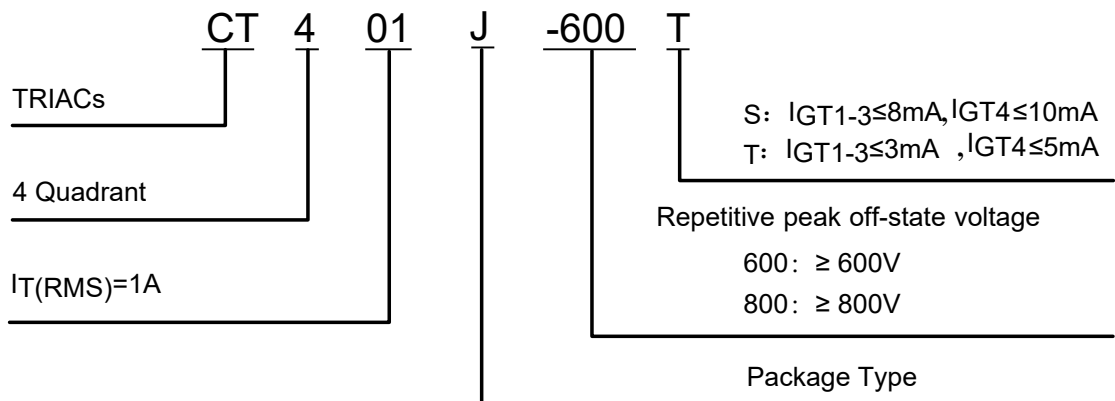
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Symbol	Parameter	Test condition	Value		Unit	
			T	S		
I _{GT}	Gate trigger current	V _D =12V, I _T =0.1A,	I - II - III	≤3	≤8	mA
			IV	≤5	≤10	
V _{GT}	Gate trigger voltage	T _j =25°C, Fig. 6	I - II - III - IV	≤1.3		V
V _{GD}	Non-triggering gate voltage	V _D =V _{DRM} , T _j =125°C		≥0.2		V
I _H	Holding current	V _D =12V, I _{GT} =0.1A, T _j =25°C, Fig. 6	I - II - III - IV	≤5	≤5	mA
I _L	Latching current		I - III - IV	≤6	≤10	mA
			II	≤10	≤15	mA
dV _D /dt	Critical rate of rise of off-state	V _D =67%V _{DRM} , Gate Open T _j =125°C		≥20	≥50	V/μs
V _{TM}	On-state Voltage	I _{TM} =1.5A, t _p =380μs, Fig. 4		≤1.55		V
I _{DRM} / I _{RRM}	Repetitive peak off-state current	V _D =V _{DRM} /V _{RRM} , T _j =25°C		≤5	≤5	μA
		V _D =V _{DRM} /V _{RRM} , T _j =125°C		≤0.1	≤0.1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th} (j-c)	Junction to case (AC)		SOT-89K	23 °C/W
R _{th} (j-a)	Junction to ambient	S=5cm ²	SOT-89K	100 °C/W

PART NUMBER



CHARACTERISTICS CURVES

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

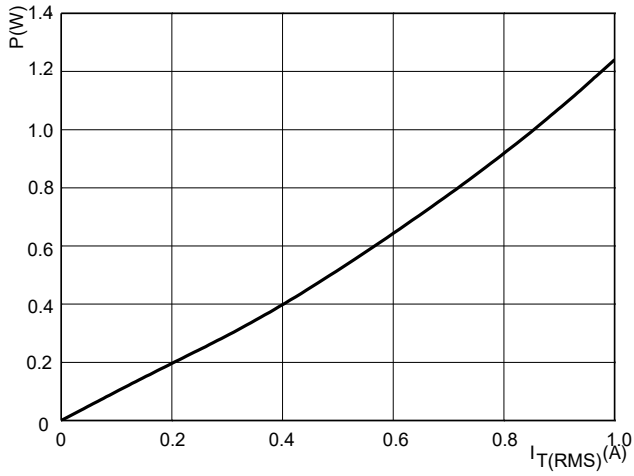


FIG.2: RMS on-state current versus case temperature (full cycle)

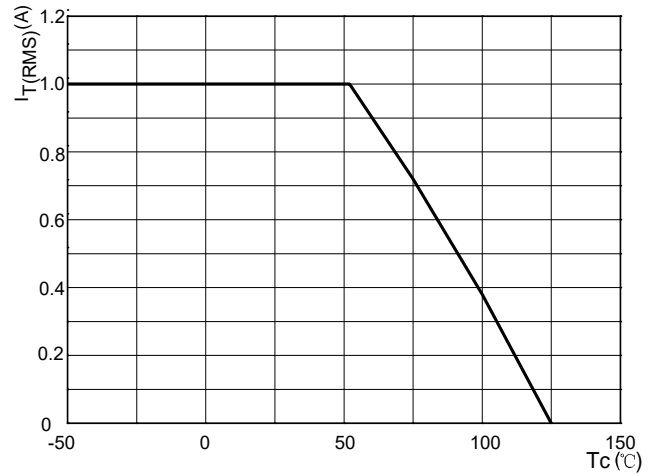


FIG.3: Surge peak on-state current versus number of cycles

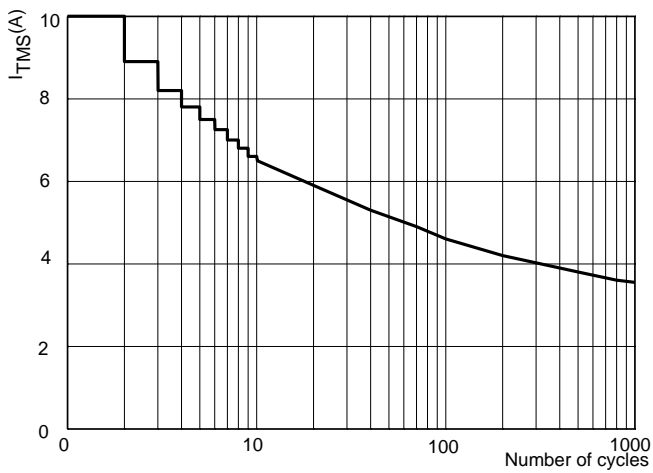


FIG.4: On-state characteristics (maximum values)

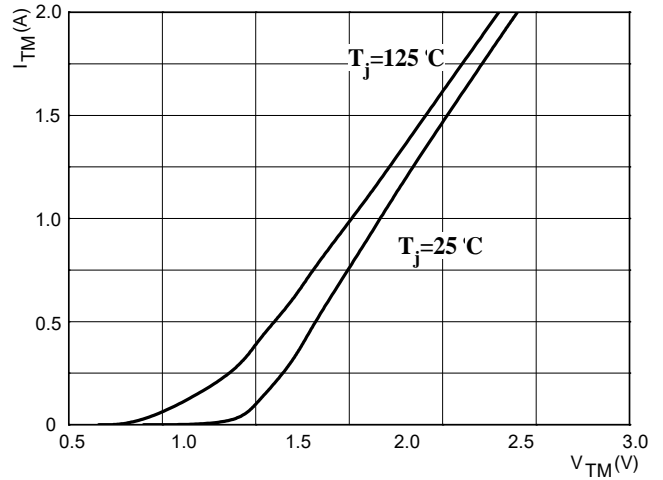


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

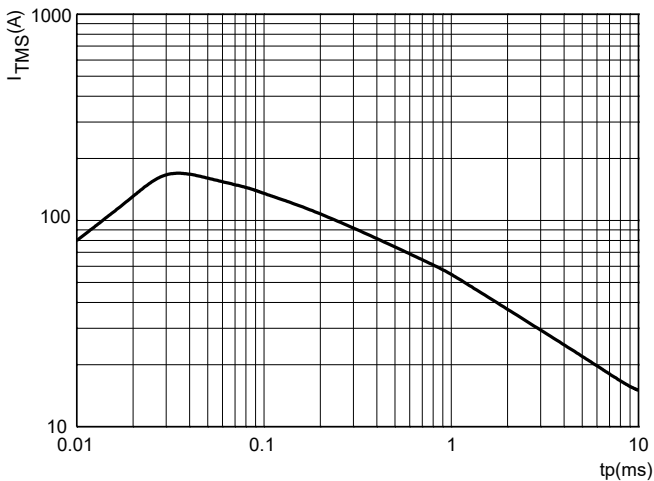
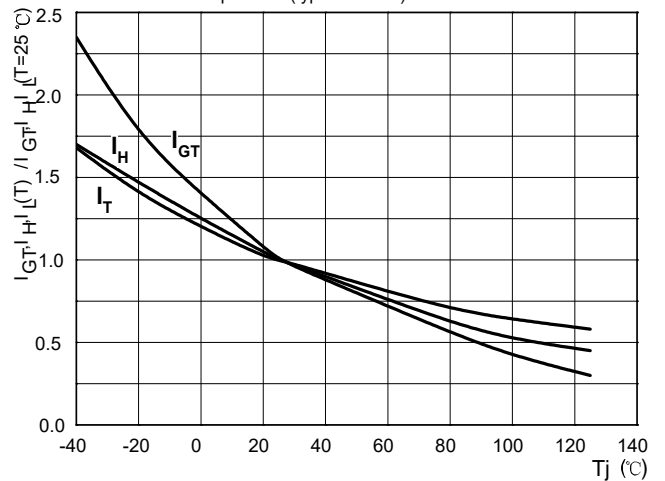
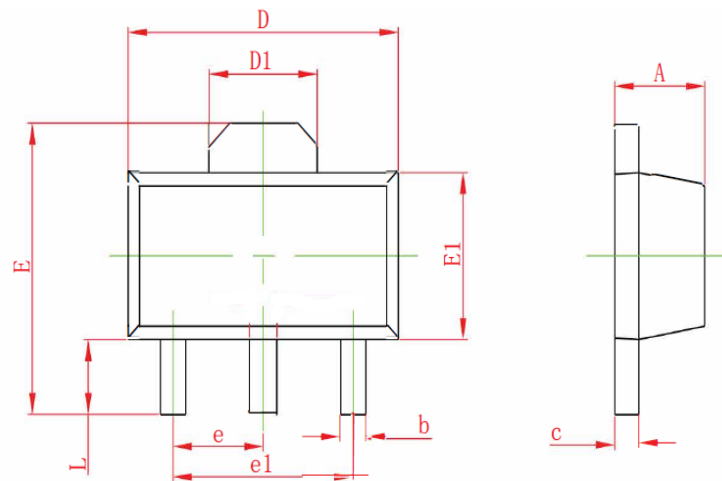


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



SOT-89K PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
c	0.350	0.460	0.014	0.017
D	4.300	4.700	0.169	0.185
D1	1.550 REF.		0.061 REF.	
E	3.940	4.250	0.155	0.167
E1	2.300	2.700	0.091	0.106
e	1.500 TYP.		0.060 TYP.	
e 1	3.000 TYP.		0.118 TYP.	
L	0.800	1.200	0.031	0.047

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