



TO-126K Plastic-Encapsulate Thyristors

CS040E Sensitive Gate SCRs

MAIN CHARACTERISTICS

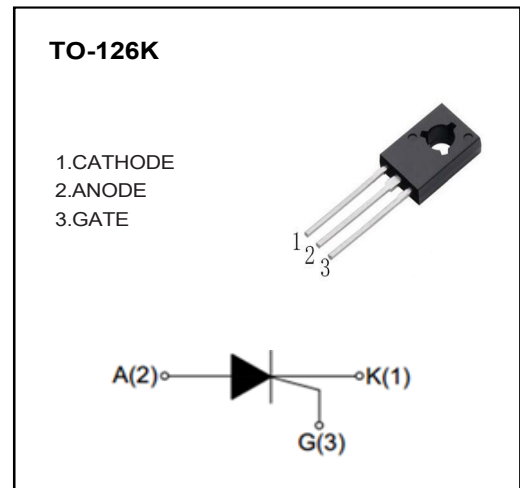
$I_{T(AV)}$	2.5A
V_{DRM}/V_{RRM}	600V
I_{GT}	200μA

FEATURES

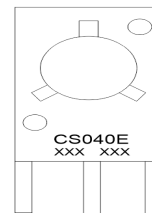
- PNP 4-layer Structure SCRs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- Sensitive gate trigger

APPLICATIONS

- Pulse Igniter
- LED Controller
- Coffee Machine



MARKING



CS040E:Part Number
XXX:Internal Code

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

Symbol	Parameter	Test condition	Value	Unit
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	$T_j=25^{\circ}\text{C}$	600	V
$I_{T(AV)}$	Average on-state current	TO-126K($T_c \leq 75^{\circ}\text{C}$)	2.5	A
$I_{T(RMS)}$	RMS on-state current	TO-126K($T_c \leq 75^{\circ}\text{C}$), Fig. 1,2	4	A
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave , $T_j(\text{init})=25^{\circ}\text{C}$, $t_p=20\text{ms}$; Fig. 3,5	30	A
I^2t	I^2t value	$t_p=10\text{ms}$	4.5	A^2s
di_T/dt	Critical rate of rise of on-state current	$I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=110^{\circ}\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p=20\mu\text{s}$, $T_j=110^{\circ}\text{C}$	1.2	A
$P_{G(AV)}$	Average gate power	$T_j=110^{\circ}\text{C}$	0.2	W
T_{STG}	Storage temperature		-40~+150	°C
T_j	Operating junction temperature		-40~+110	

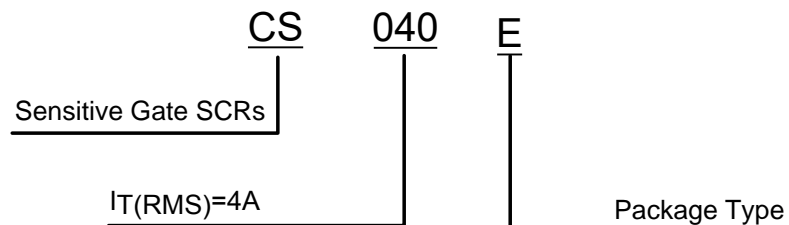
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Symbol	Parameter	Test condition	Value			Unit
			Min	Nom	Max	
I _{GT}	Gate trigger current	V _D =12V, R _L =140Ω, Fig. 6	10	-	200	μA
V _{GT}	Gate trigger voltage	V _D =12V, R _L =140Ω, T _j =110°C	-	-	0.8	V
V _{GD}	Non-triggering gate voltage	V _D =V _{DRM} , R _{GK} =1kΩ, R _L =3.3kΩ, T _j =110°C	0.2	-	-	V
I _H	Holding current	I _{TM} =50mA, R _{GK} =1kΩ, T _j =25°C, Fig. 6	-	-	5	mA
I _L	Latching current	I _G =1mA, R _{GK} =1kΩ, T _j =25°C, Fig. 6	-	-	6	mA
dV _D /dt	Critical rate of rise of off-state	V _D =67%V _{DRM} , R _{GK} =1kΩ, T _j =110°C	10	-	-	V/μs
V _{TM}	On-state Voltage	I _{TM} =8A, 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	μA
		V _D =V _{DRM} /V _{RRM} , T _j =110°C	-	-	150	μA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case (AC)	TO-126K	7.2 °C/W
R _{th} (j-a)	Junction to ambient	TO-126K	100 °C/W

PART NUMBER



CHARACTERISTICS CURVES

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

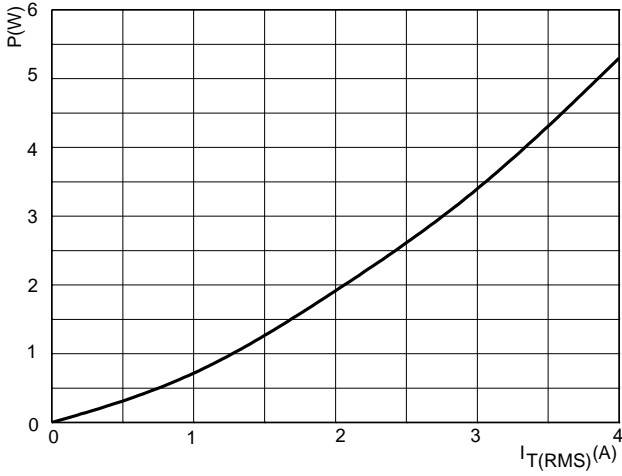


FIG.2: RMS on-state current versus case temperature (full cycle)

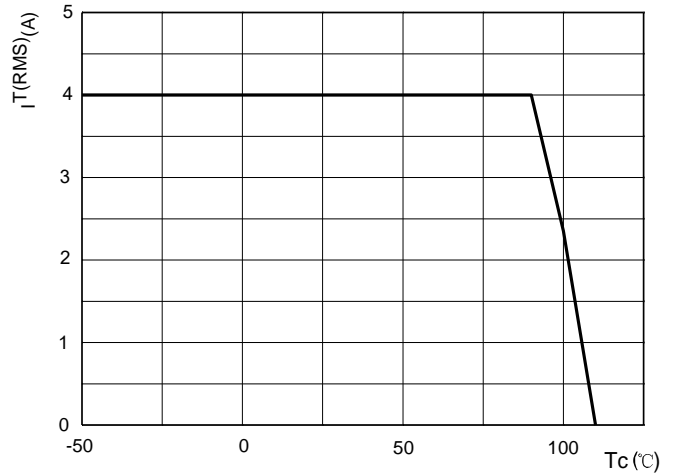


FIG.3: Surge peak on-state current versus number of cycles

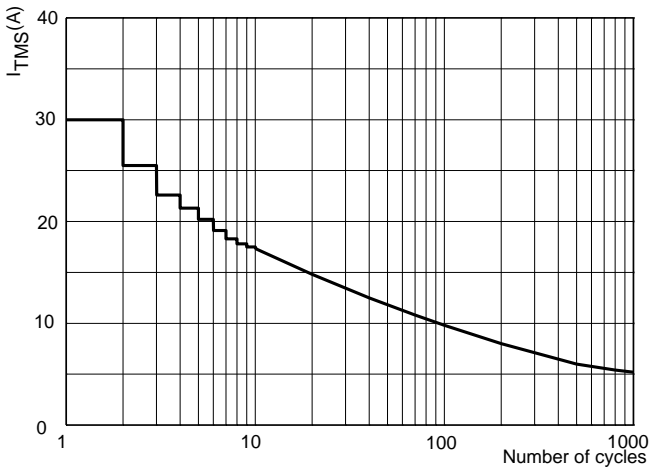


FIG.4: On-state characteristics (maximum values)

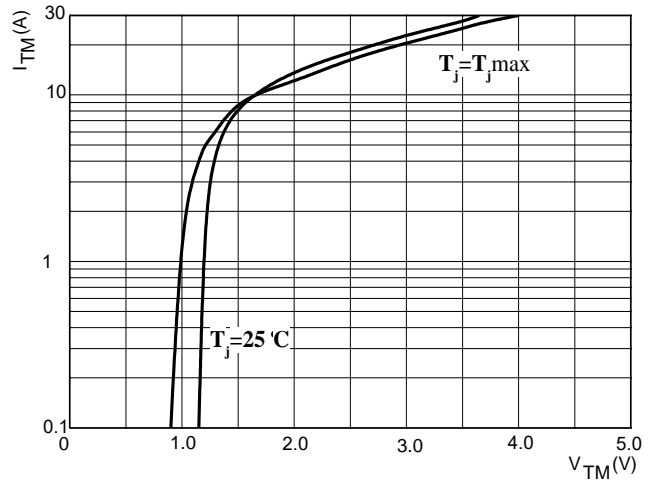


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

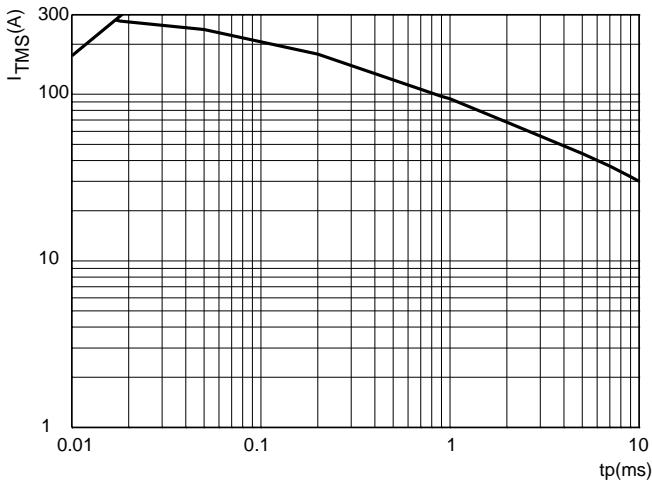
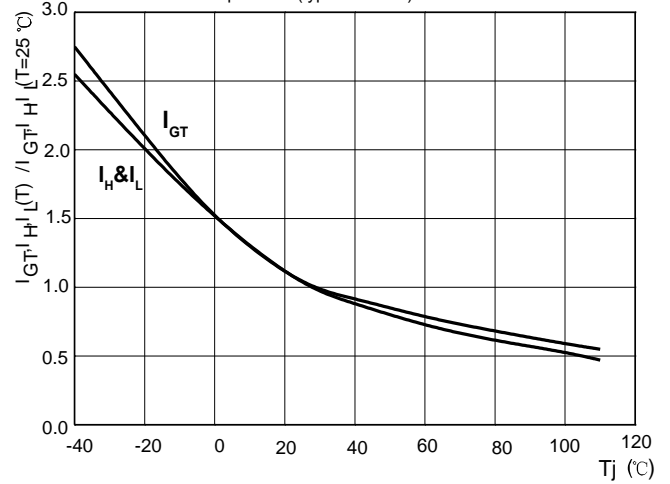
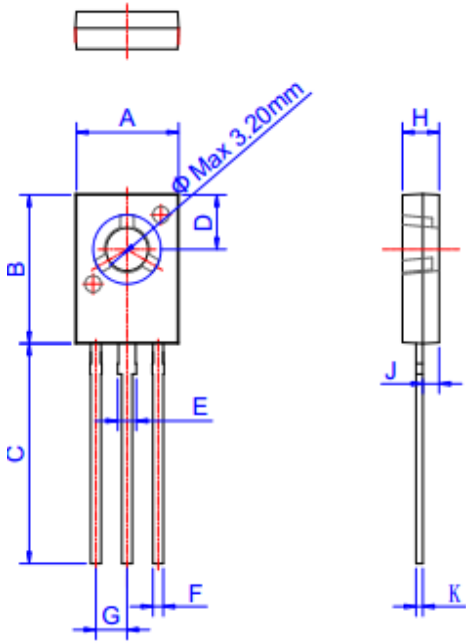


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



TO-126K PACKAGE OUTLINE DIMENSIONS



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.40		7.80	0.291		0.307
B	10.6		11.2	0.417		0.441
C	15.3		16.3	0.602		0.642
D	3.90		4.10	0.154		0.161
E	1.17		1.47	0.046		0.058
F	0.66		0.86	0.026		0.034
G		2.29			0.090	
H	2.50		2.90	0.098		0.114
J	1.10		1.50	0.043		0.059
K	0.45		0.60	0.018		0.024