



## TO-126K Plastic-Encapsulate Thyristors

### CS030E Sensitive Gate SCRs

#### MAIN CHARACTERISTICS

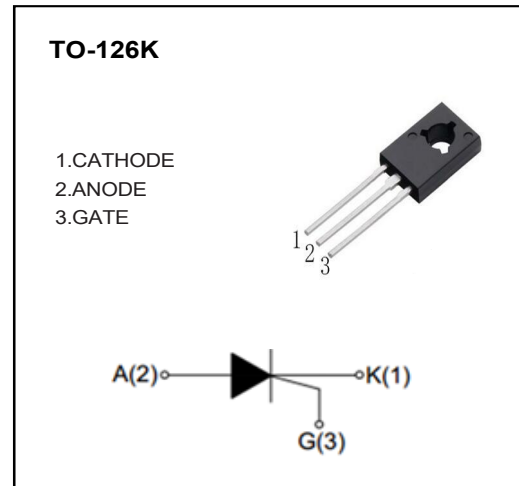
$I_{T(AV)}$	<b>2A</b>
$V_{DRM}/V_{RRM}$	<b>600V</b>
$I_{GT}$	<b>200<math>\mu</math>A</b>

#### FEATURES

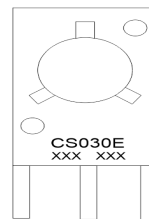
- PNP 4-layer Structure SCRs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- Sensitive gate trigger

#### APPLICATIONS

- Pulse Igniter
- LED Controller
- Coffee Machine



#### MARKING



CS030E: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( $T_c \leq 80^{\circ}\text{C}$ )	2	A
$I_{T(RMS)}$	RMS on-state current	TO-126K( $T_c \leq 80^{\circ}\text{C}$ ), Fig. 1,2	3	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	20	A
$I^2t$	$I^2t$ value	$t_p=10\text{ms}$	2	$\text{A}^2\text{s}$
$di_T/dt$	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	$t_p=20\mu\text{s}$ , $T_j=110^{\circ}\text{C}$	0.2	A
$P_{G(AV)}$	Average gate power	$T_j=110^{\circ}\text{C}$	0.1	W
$T_{STG}$	Storage temperature		-40~+150	°C
$T_j$	Operating junction temperature		-40~+110	

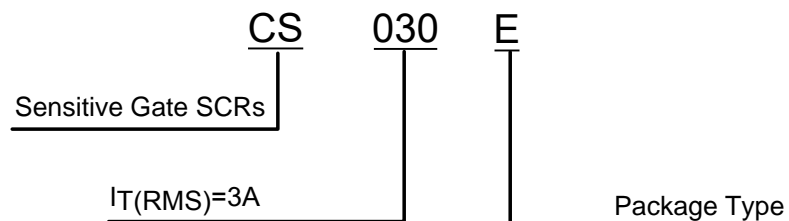
## ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test condition	Value			Unit
			Min	Nom	Max	
I <sub>GT</sub>	Gate trigger current	V <sub>D</sub> =6V, R <sub>L</sub> =100Ω, R <sub>GK</sub> =1kΩ Fig. 6	10	-	200	μA
V <sub>GT</sub>	Gate trigger voltage	V <sub>D</sub> =12V, R <sub>L</sub> =100Ω, R <sub>GK</sub> =1kΩ	-	-	0.8	V
V <sub>GD</sub>	Non-triggering gate voltage	V <sub>D</sub> =1/2V <sub>DRM</sub> , R <sub>GK</sub> =1kΩ, T <sub>j</sub> =110°C	0.2	-	-	V
I <sub>H</sub>	Holding current	V <sub>D</sub> =24V, R <sub>GK</sub> =1kΩ, I <sub>TM</sub> =4A, T <sub>j</sub> =25°C, Fig. 6	-	1	3	mA
I <sub>L</sub>	Latching current	I <sub>G</sub> =1.2I <sub>GT</sub> , Fig. 6	-	-	4	mA
dV <sub>D</sub> /dt	Critical rate of rise of off-state	V <sub>D</sub> =67%V <sub>DRM</sub> , R <sub>GK</sub> =1kΩ, T <sub>j</sub> =110°C	10	-	-	V/μs
V <sub>TM</sub>	On-state Voltage	I <sub>TM</sub> =4A, Fig. 4	-	-	1.5	V
I <sub>DRM</sub> / I <sub>RPM</sub>	Repetitive peak off-state current	V <sub>D</sub> =V <sub>DRM</sub> /V <sub>RPM</sub> , T <sub>j</sub> =25°C	-	-	5	μA
		V <sub>D</sub> =V <sub>DRM</sub> /V <sub>RPM</sub> , T <sub>j</sub> =110°C	-	-	100	μA

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th</sub> (j-c)	Junction to case (AC)	TO-126K	7.2 °C/W
R <sub>th</sub> (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)

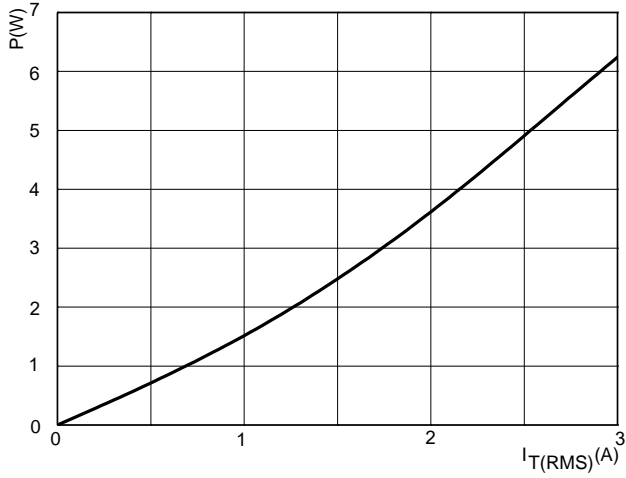


FIG.2: RMS on-state current versus case temperature (full cycle)

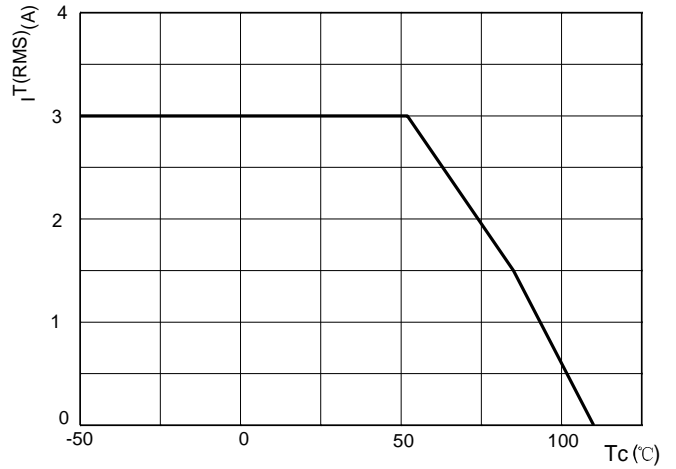


FIG.3: Surge peak on-state current versus number of cycles

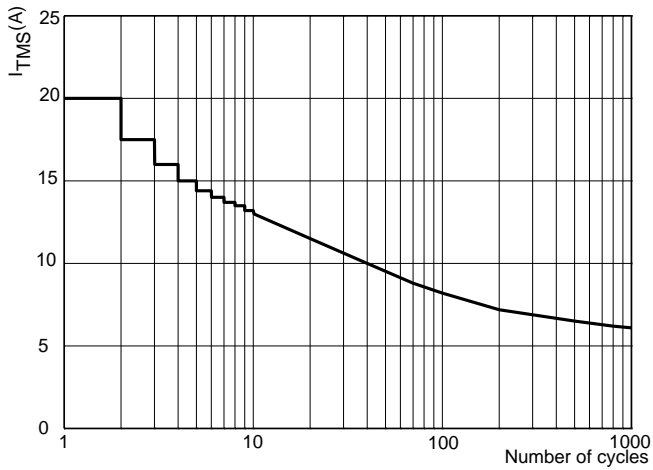


FIG.4: On-state characteristics (maximum values)

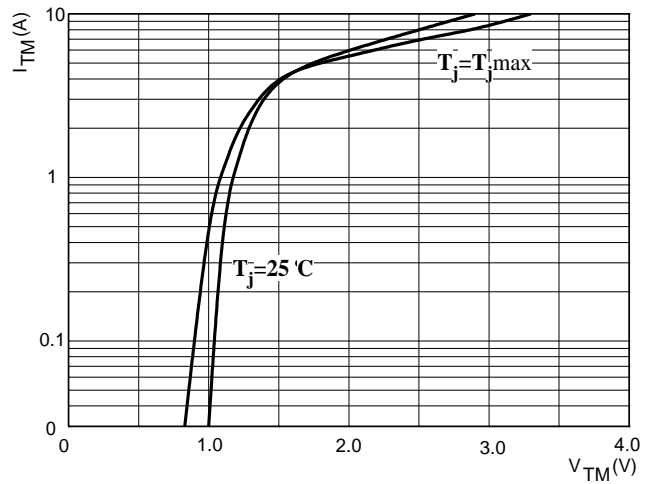


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$

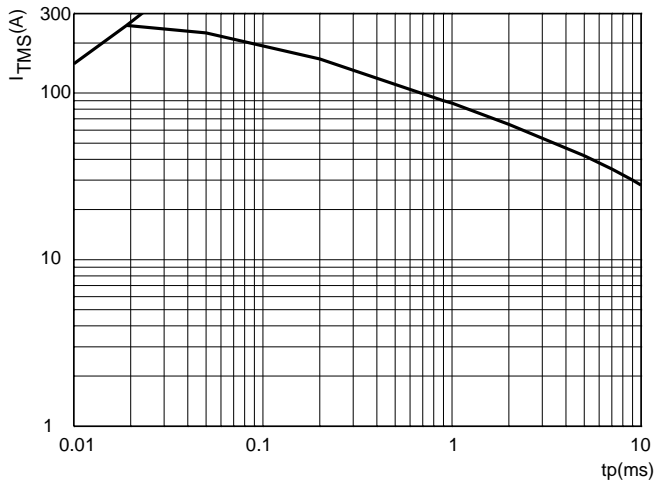
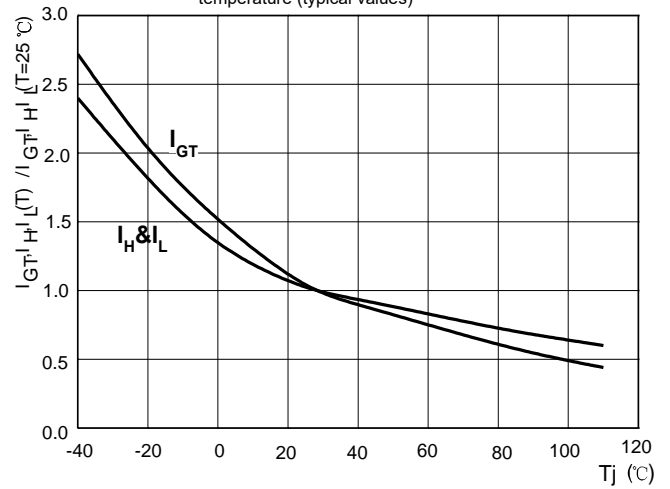
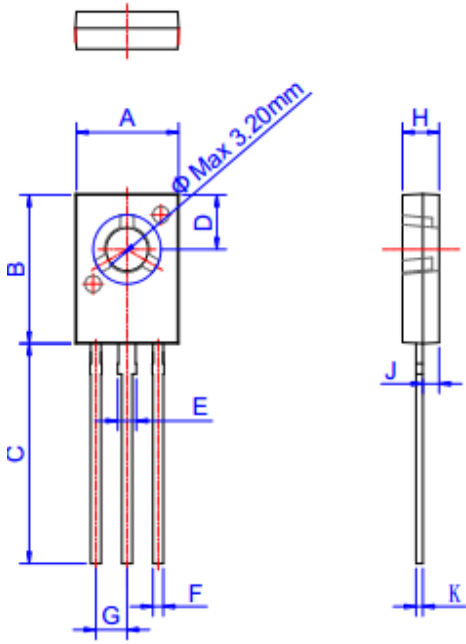


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



# 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