

4A Sensitive Gate SCRs

Product Summary

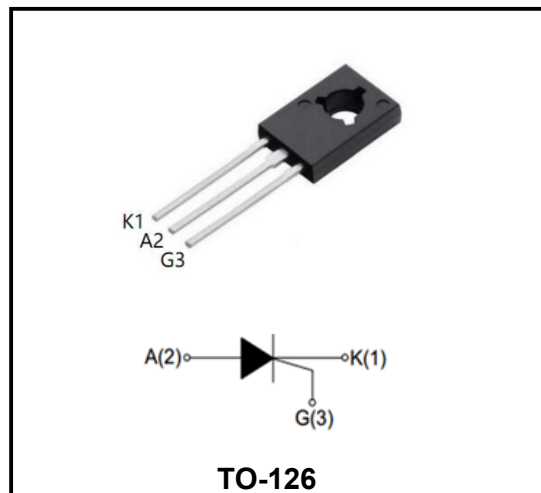
Symbol	Value	Unit
$I_{T(RMS)}$	4	A
$V_{DRM} V_{RRM}$	200/400/600/800	V
V_{TM}	1.8	V

GENERAL DESCRIPTION

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits.

FEATURES

- ♦ Blocking voltage to 800V
- ♦ On-state current rating of 4.0A RMS
- ♦ Sensitive gate allows triggering by micro controllers and other logic circuits
- ♦ Glass-passivated surface for reliability and uniformity



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	200/400/600/800	V
Repetitive peak reverse voltage	V_{RRM}	200/400/600/800	V
Average on-State current Half SineWave: $T_c = 74^\circ\text{C}$	$I_{T(AV)}$	2.5	A
RMS on-state current	$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current ($t_p=10\text{ms}$)	I_{TSM}	30	A
I^2t value for fusing	I^2t	4.5	A ² S
Critical rate of rise of on-state current ($I_G = 2 I_{GT}$) $t_r \leq 100\text{ns}$	di_T/dt	50	A/ μs
Peak gate current	I_{GM}	1.2	A
Average gate power dissipation	$P_{G(AV)}$	0.2	W
Junction Temperature	T_J	-40~+125	°C
Storage Temperature	T_{STG}	-40 ~+150	°C

Electrical characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ	Max	
Gate trigger current	I_{GT}	$V_D=12\text{V}, R_L=140\Omega$	0	-	200	μA
Gate trigger voltage	V_{GT}	$V_D=12\text{V}, R_L=140\Omega$	-	-	0.8	V
Non-triggering gate voltage	V_{GD}	$V_D=V_{DRM}, R_{GK}=1\text{k}\Omega, R_L=3.3\text{k}\Omega$	0.1	-	-	V
Holding current	I_H	$I_T=50\text{mA}, R_{GK}=1\text{k}\Omega, T_J=25^{\circ}\text{C}$	-	-	5	mA
Latching current	I_L	$I_G=1\text{mA}, R_{GK}=1\text{k}\Omega$	-	-	6	mA
Threshold voltage	V_{th}	$T_J = 110^{\circ}\text{C}$	-	-	0.95	V
Dynamic resistance	R_d	$T_J = 110^{\circ}\text{C}$	-	-	100	$\text{m}\Omega$

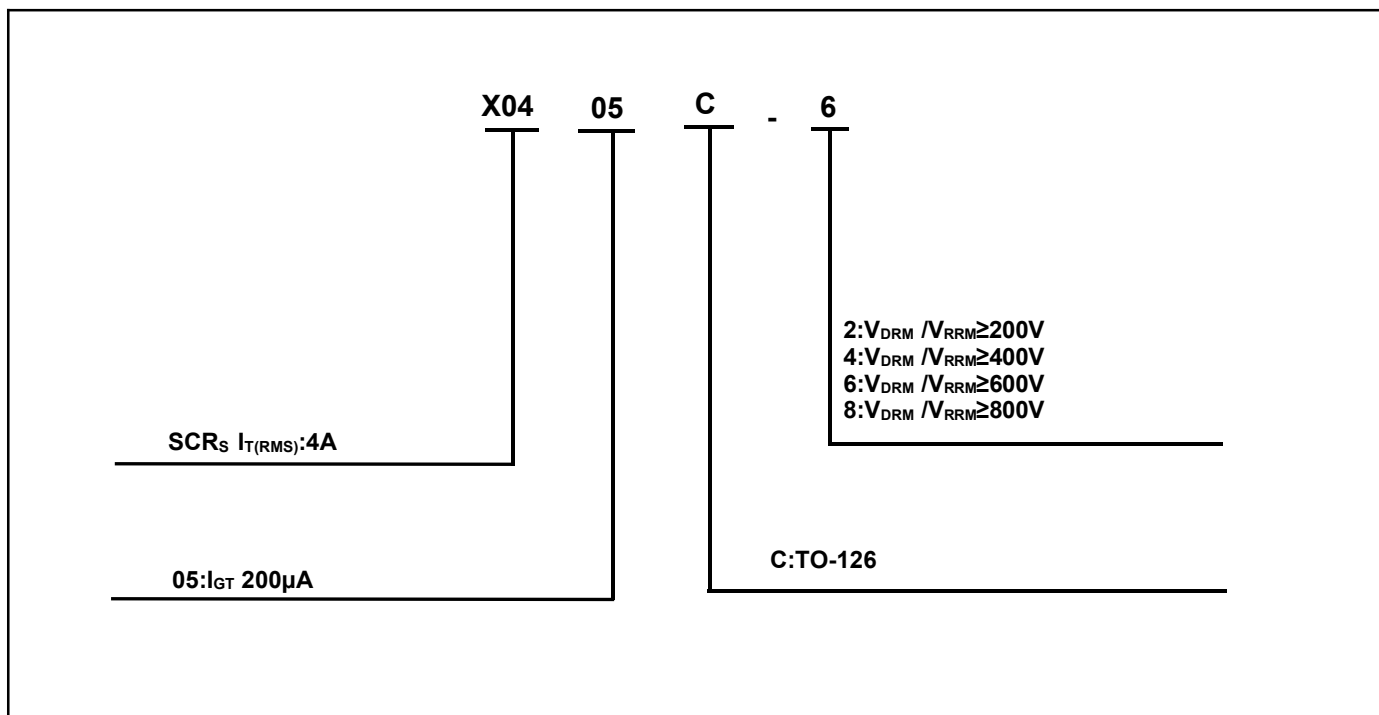
STATIC CHARACTERISTICS

On-state Voltage	V_{TM}	$I_{TM}=8\text{A}, t_p=380\mu\text{s}$	-	-	1.8	V
Repetitive Peak Off-State Current	I_{DRM}	$V_D=V_{DRM}=V_{RRM}$	$T_J=25^{\circ}\text{C}$	-	-	5 μA
Repetitive Peak Reverse Current	I_{RRM}		$T_J=110^{\circ}\text{C}$	-	-	1 mA

THERMAL RESISTANCES

Thermal resistance	$R_{th(j-c)}$	Junction to case	Max	15	$^{\circ}\text{C}/\text{W}$
	$R_{th(j-a)}$	Junction to ambient	Max	100	$^{\circ}\text{C}/\text{W}$

Ordering Information



Typical Characteristics

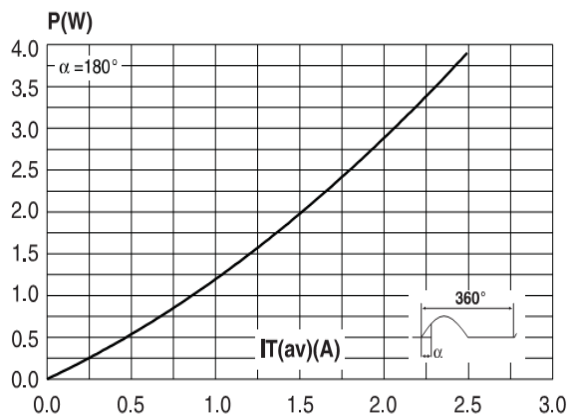


Fig.1: Maximum average power dissipation vs average on-state current.

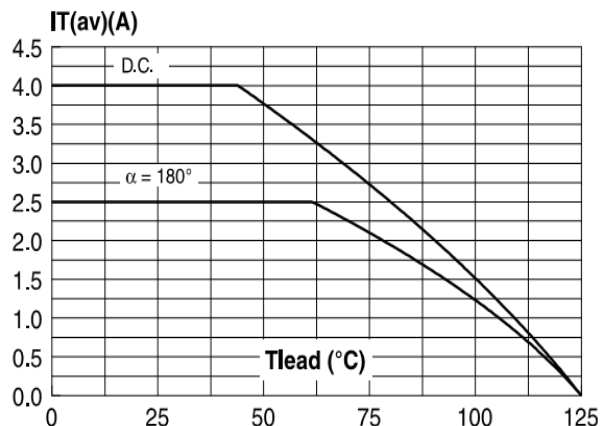


Fig.2-1: Average and D.C. on-state current vs lead temperature.

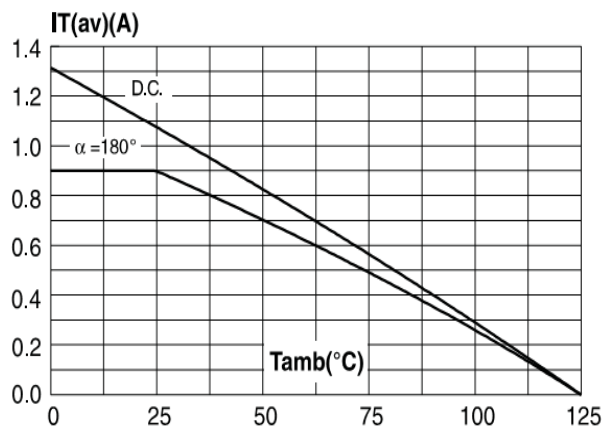


Fig.2-2: Average and D.C. on-state current vs ambient temperature (device mounted on FR4 with recommended pad layout)

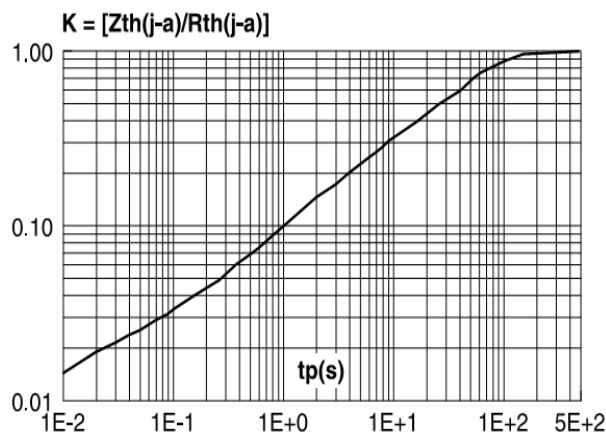


Fig.3: Relative variation of thermal impedance junction to ambient vs pulse duration.

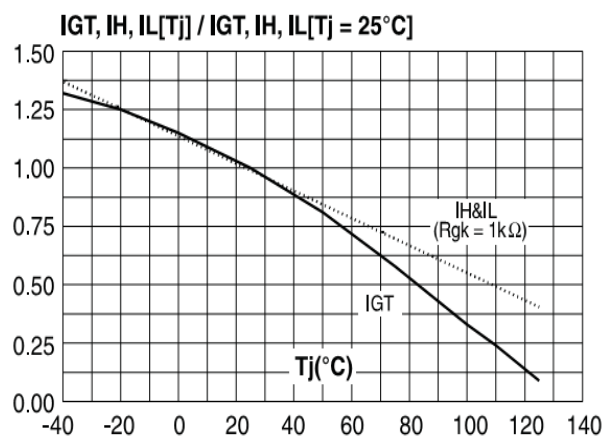


Fig.4: Relative variation of gate trigger current, holding current and latching current vs junction temperature

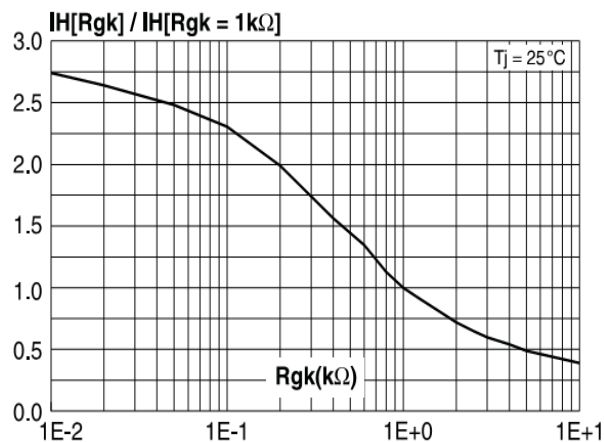


Fig.5: Relative variation of holding current vs gate-cathode resistance

Typical Characteristics

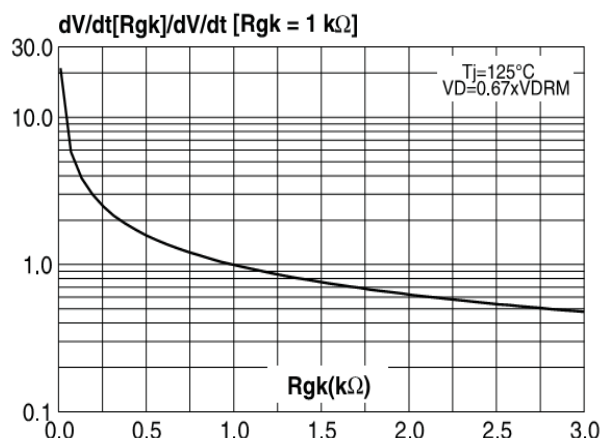


Fig.6: Relative variation of dV/dt immunity vs gate-cathode resistance

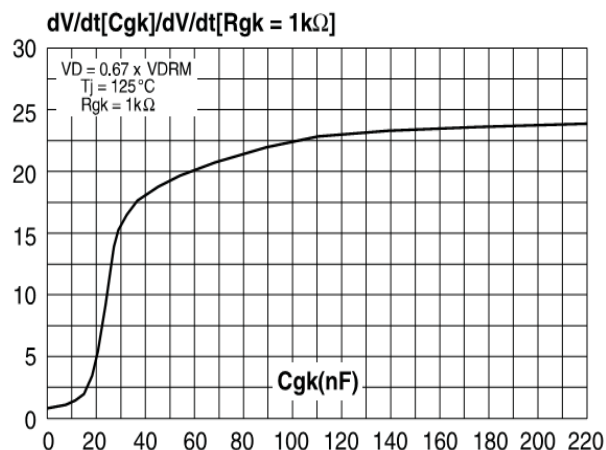


Fig.7: Relative variation of dV/dt immunity vs gate-cathode capacitance

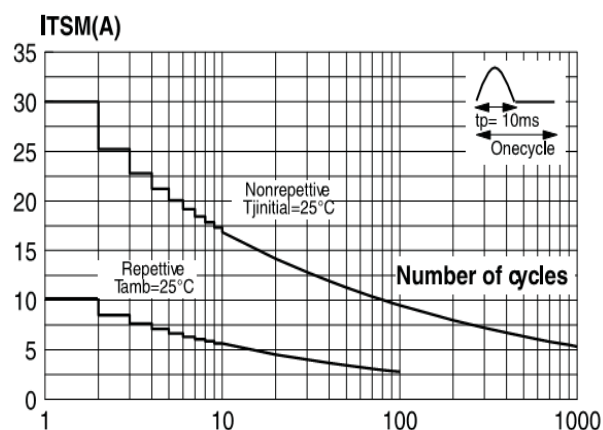


Fig.8: Surge peak on-state current vs number of cycles.

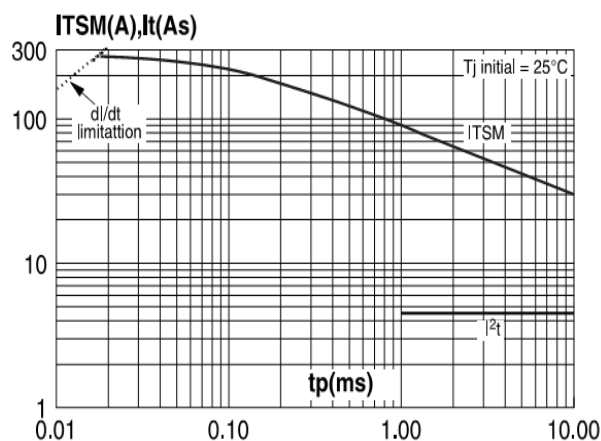


Fig.9: Non-repetitive surge peakon-state current for asinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

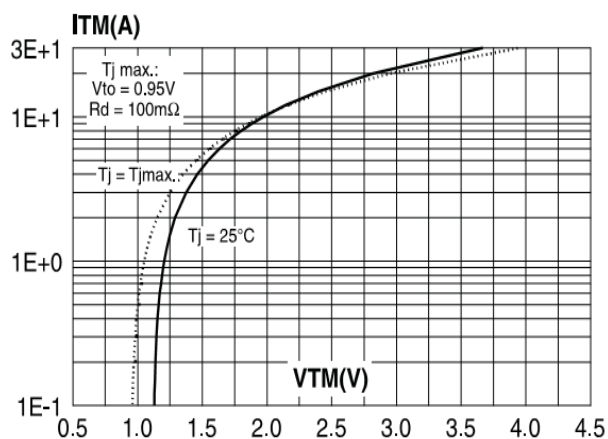


Fig.10: On-state characteristics

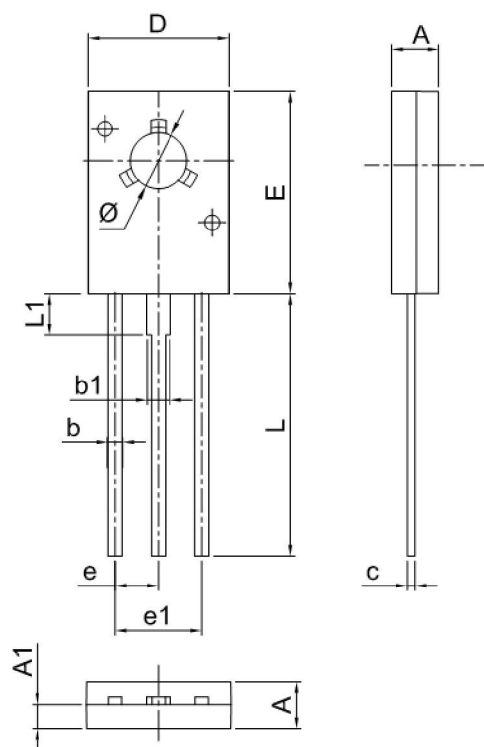
Ordering information

Package	Packing Description	Base Quantity
TO-126	Bulk	500pcs/Bag

Package Dimensions

TO-126

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.40	2.80	0.094	0.110
A1	1.00	1.40	0.039	0.055
b	0.66	0.86	0.026	0.034
b1	1.17	1.37	0.046	0.054
c	0.40	0.60	0.016	0.024
D	7.30	7.70	0.287	0.303
E	10.60	11.00	0.417	0.433
e	2.25	2.33	0.089	0.092
e1	4.50	4.66	0.177	0.183
L	14.00	15.00	0.551	0.591
L1	1.90	2.50	0.075	0.098
Φ	3.10	3.30	0.122	0.130



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