YAREN STANDARD 8A SCRs

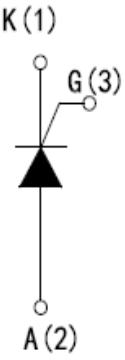
General Description

Glass passivated thyristors in a plastic envelope ,Intended for use applications requiring high bidirectional blocking voltage capability and high thermal cycling performance.Typical applica tions include motor control ,industrial and domestic lighting, hea ting and static switching.

Features

- IT(AV)=4A
- IGT≤100uA
- VTM≤1.6V

To-251 Top View



Schematic Diagram

VDRM = 600 V

IT(AV)= 4A

IGT≤100uA

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
X0405	X0405	TO-251	–	–	–

Absolute Maximum Ratings (TA=25℃unless otherwise noted)

Symbol	Parameter/ Conditiitns	Value	Unit
VDRM/VRRM	Repetitive peak off-state Voltages	600	V
IT(AV)	Average on-state current (half sine wave;Tmb≤109℃)	4	A
IT(RMS)	RMS on-state current (all conduction angles)	8	A
ITSM	Non-repetitive peak on-state current(half sine wave;Tj=25℃t=10ms)	30	A
	Non-repetitive peak on-state current(half sine wave;Tj=25℃t=8.3ms)	33	A
I^2T	I^2T for fusing (t=10ms)	4.5	A^2S
Dit/dt	Repetitive rate of rise of on-state current after triggering (I TM=20A;IG=50mA;Dig/dt=50mA/us)	50	A/us
IGM	Peak gate current	1.2	A
VGM	Peak gate voltage	5	V
PGM	Peak gate power	20	W
P G(AV)	Average gate power (over any 20 ms period)	0.2	W
TJ	Operating junction temperature	-55 To 150	℃

Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case(DC)	2.0	℃/W
Rth(j-a)	Junction-to-Ambient(DC)	100	℃/W

Electrical Characteristics (TA=25℃unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
IGT	Gate trigger current	VD=6V IT=0.1V	10	40	120	mA
VGT	Gate trigger Voltage	VD=6V IT=0.1V		0.5	1.0	V
		V D=VDRM(MAX);IT =0.1A;TJ=125℃	0.1	0.4		V
V T	On-state voltage	V IT =5A		1.2	1.45	V
IL	Latching current	VD=6V IT=0.1V		0.4	10	mA
IH	Holding current	VD=6V IT=0.1V		0.3	6	mA
I D/I R	Off-state leakage current	V D=VDRM(MAX);VR=VRRM(MAX);TJ=125℃			10	uA
Dynamic Characteristics						
DVD/DT	Critical rate of rise or off-state voltage	VDM=67%VDRM(MAX) ; TJ=125℃; (Gate open circuit)	15			V/us

Characteristics Curve:

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

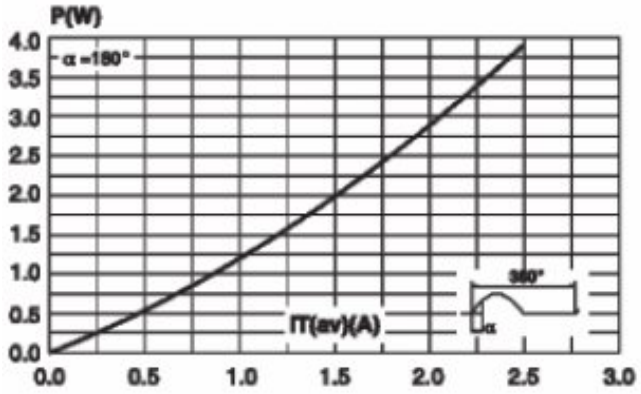


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

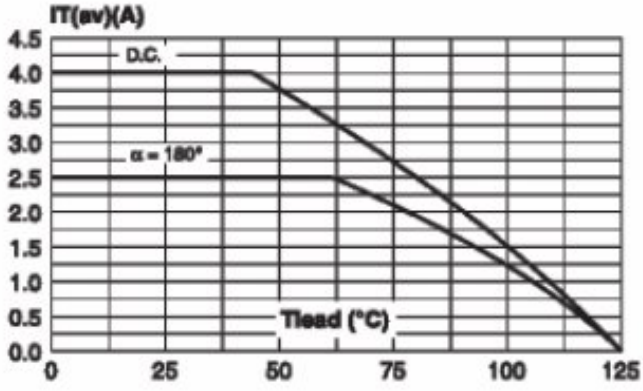


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

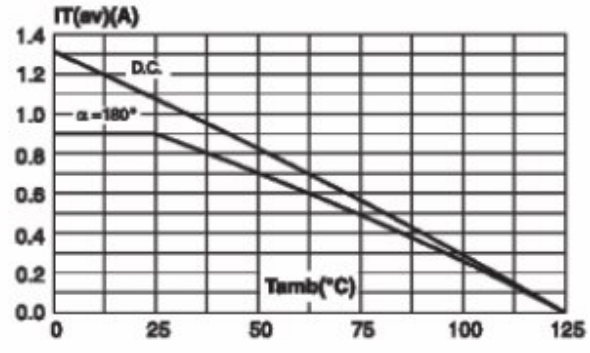


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

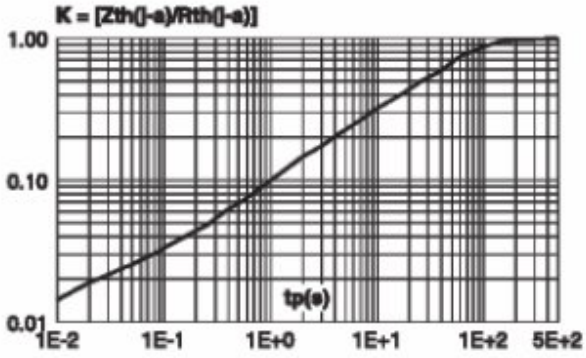


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

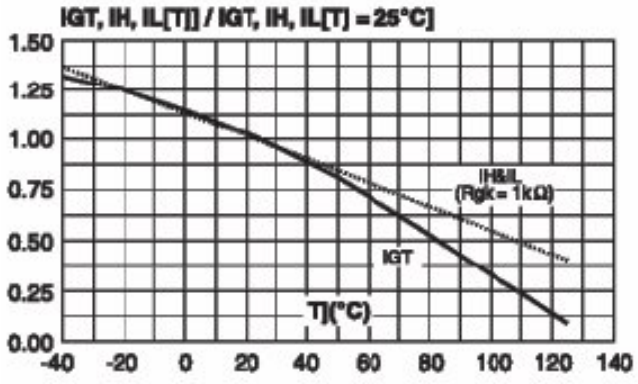


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

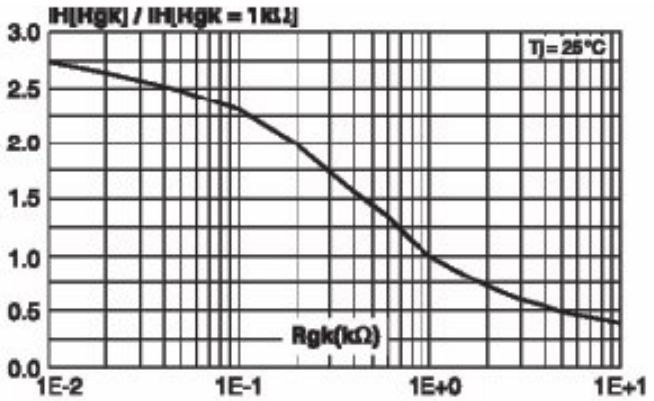


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

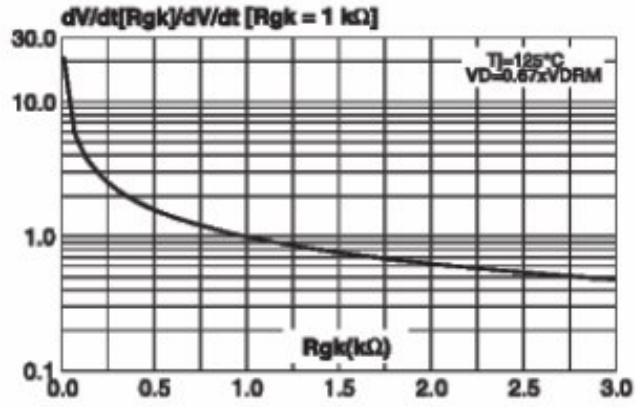


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

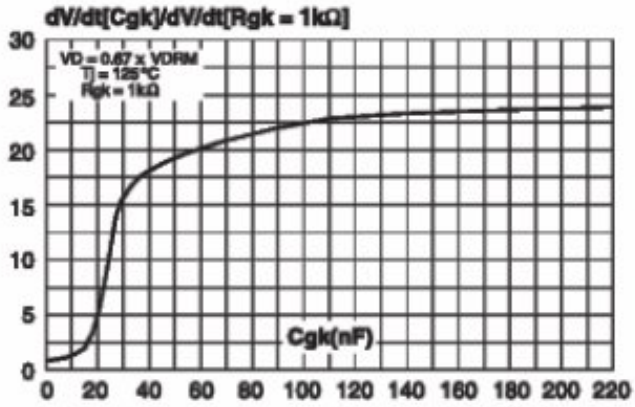


Fig. 8: Surge peak on-state current versus number of cycles.

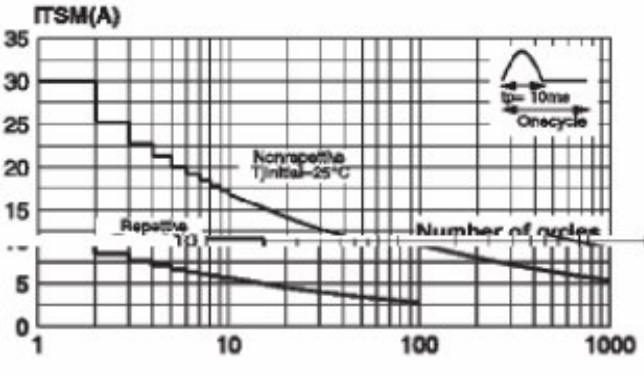


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding value of I t.

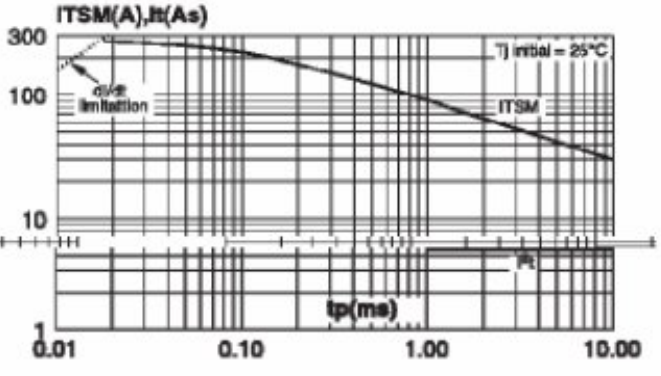


Fig. 10: On-state characteristics (maximum values).