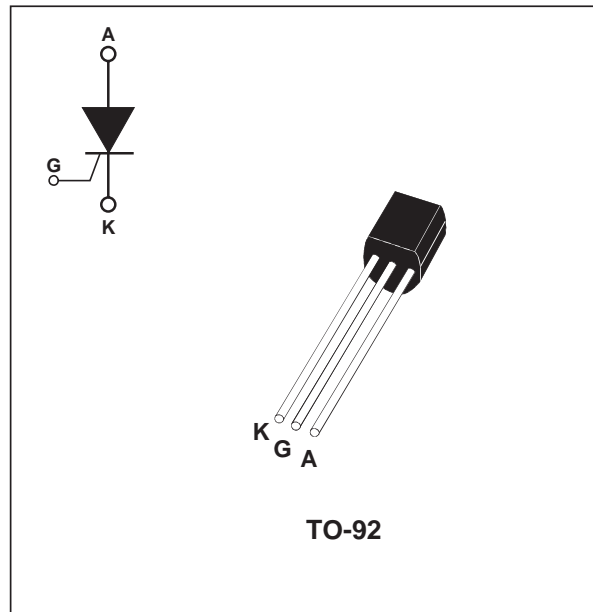


**SENSITIVE GATE 0.8A SCRs**
**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	0.8	A
$V_{DRM}$	400	V
$I_{GT}$	200	$\mu A$

**DESCRIPTION**

Thanks to its highly sensitive triggering levels, the XL0840 device is suitable for all high volumes applications where the available gate current is limited, such as Christmas lights control.


**ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)		$T_I = 55^\circ C$	0.8 A
$I_{T(AV)}$	Average on-state current (180° conduction angle)		$T_I = 55^\circ C$	0.5 A
$I_{TSM}$	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	$T_j = 25^\circ C$	8 A
		$t_p = 10 \text{ ms}$		7 A
$I^2t$	$I^2t$ Value for fusing	$t_p = 10 \text{ ms}$	$T_j = 25^\circ C$	0.24 $A^2s$
$di/dt$	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$ , $t_r \leq 100ns$	$F = 60 \text{ Hz}$	$T_j = 125^\circ C$	30 $A/\mu s$
$I_{GM}$	Peak gate current	$t_p = 20\mu s$	$T_j = 125^\circ C$	1 A
$P_{G(AV)}$	Average gate power dissipation		$T_j = 125^\circ C$	0.1 W
$T_{stg}$ $T_j$	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125 $^\circ C$

## XL0840

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

Symbol	Test Conditions		XL0840	Unit		
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =140Ω		MAX.	200	μA	
V <sub>GT</sub>			MAX.	0.8	V	
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ R <sub>GK</sub> = 1kΩ	T <sub>j</sub> = 125°C	MIN.	0.1	V	
V <sub>RG</sub>	I <sub>RG</sub> = 10μA		MIN.	8	V	
I <sub>H</sub>	I <sub>T</sub> = 50mA R <sub>GK</sub> = 1kΩ		MAX.	5	mA	
I <sub>L</sub>	I <sub>G</sub> = 1mA R <sub>GK</sub> = 1kΩ		MAX.	6	mA	
dV/dt	V <sub>D</sub> =67% V <sub>DRM</sub> R <sub>GK</sub> = 1kΩ	T <sub>j</sub> = 125°C	MIN.	75	V/μs	
V <sub>TM</sub>	I <sub>TM</sub> = 1.6A tp = 380μs	T <sub>j</sub> = 25°C	MAX.	1.95	V	
V <sub>TO</sub>	Threshold voltage		T <sub>j</sub> = 125°C	MAX.	1.0	V
R <sub>d</sub>	Dynamic resistance		T <sub>j</sub> = 125°C	MAX.	600	mΩ
I <sub>DRM</sub>	V <sub>DRM</sub> R <sub>GK</sub> = 1kΩ	T <sub>j</sub> = 25°C	MAX.	1	μA	
		T <sub>j</sub> = 125°C		100		

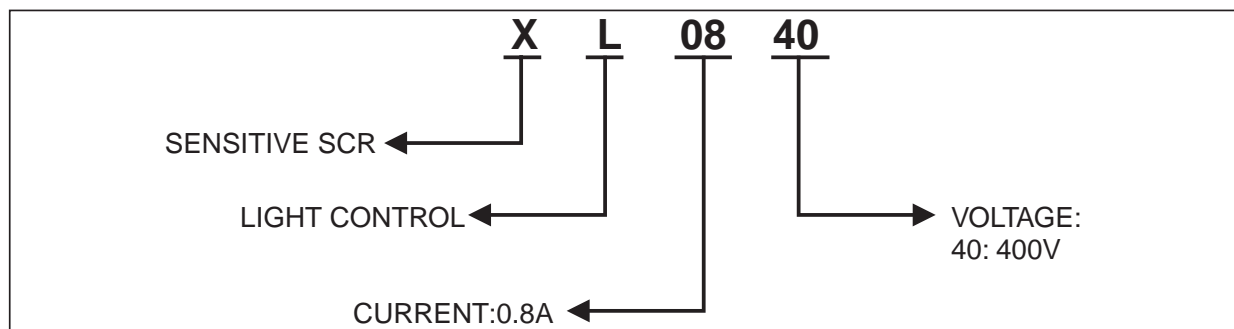
### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-a)</sub>	Junction to ambient (DC)	150	°C/W
R <sub>th(j-l)</sub>	Junction to lead (DC)	80	°C/W

### PRODUCT SELECTOR

Part Number	Voltage	Sensitivity	Package
XL0840	400V	200 μA	TO-92

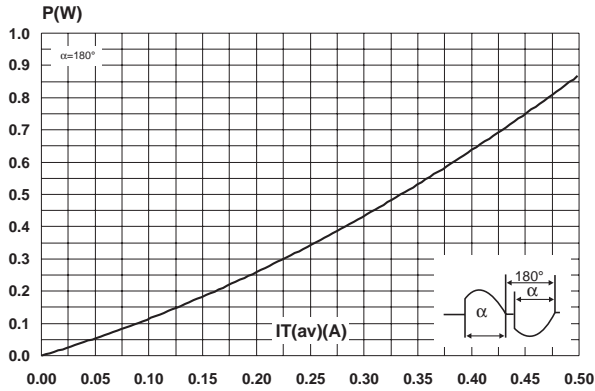
### ORDERING INFORMATION



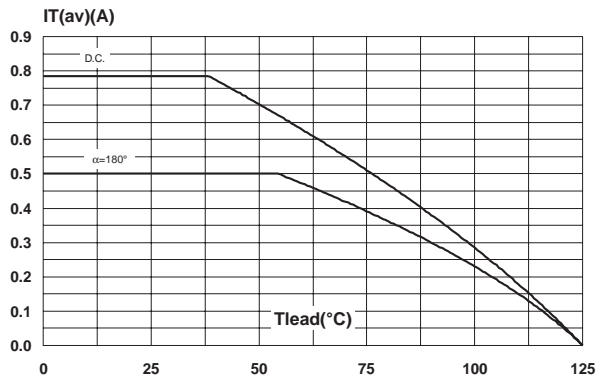
### OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
XL0840	XL0840	0.2 g	2500	Bulk

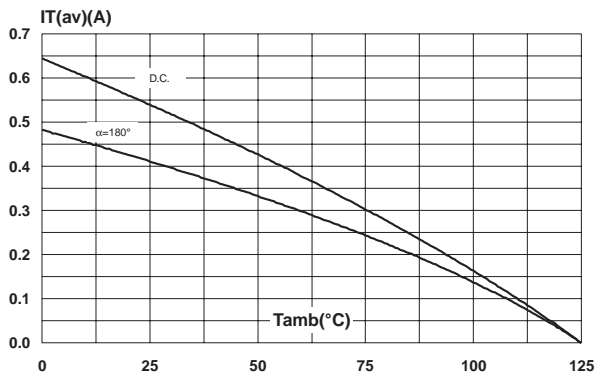
**Fig. 1:** Maximum average power dissipation versus average on-state current.



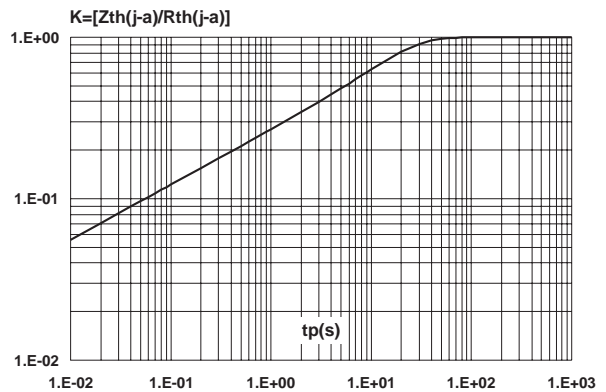
**Fig. 2-1:** Average and D.C. on-state current versus lead temperature.



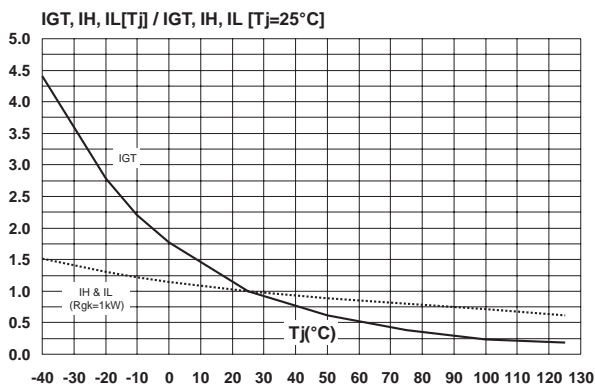
**Fig. 2-2:** Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).



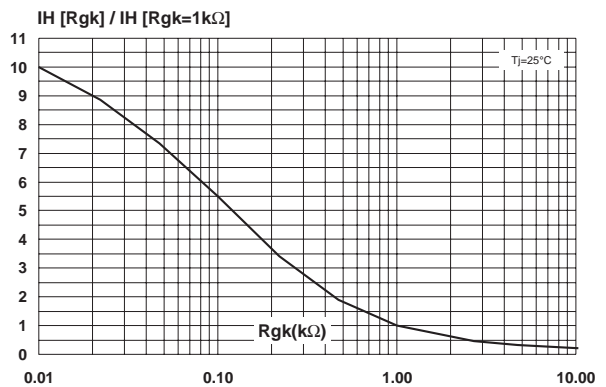
**Fig. 3:** Relative variation of thermal impedance junction to ambient versus pulse duration.



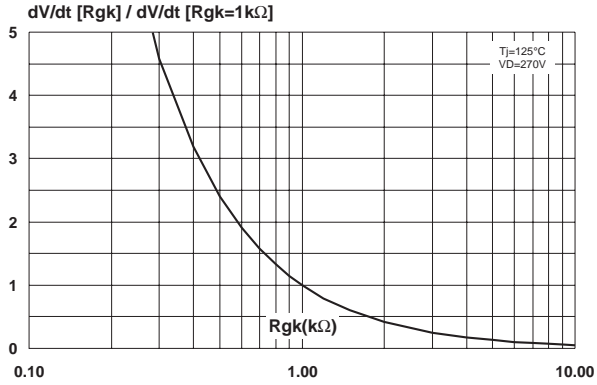
**Fig. 4:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).



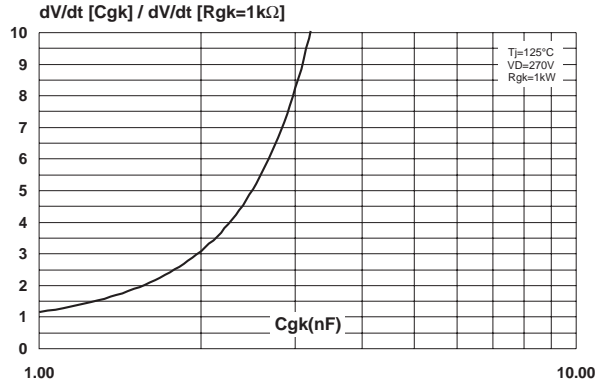
**Fig. 5:** Relative variation of holding current versus gate-cathode resistance (typical values).



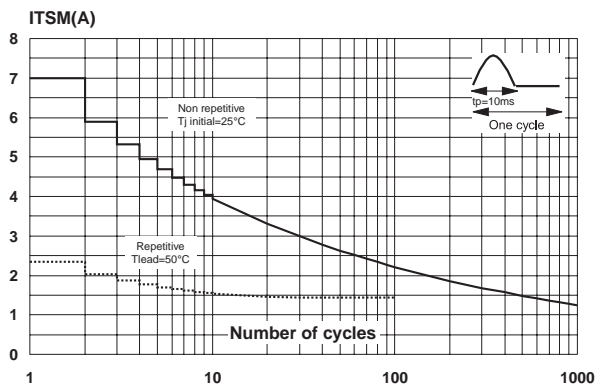
**Fig. 6:** Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).



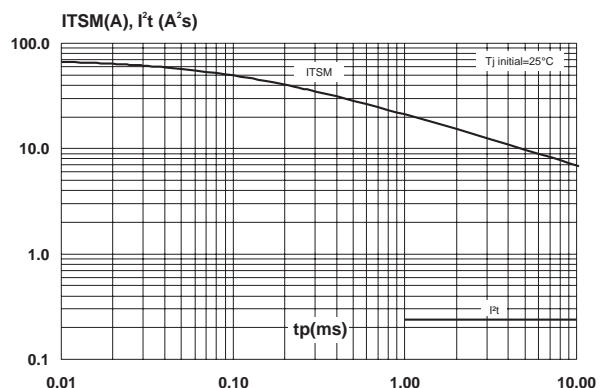
**Fig. 7:** Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).



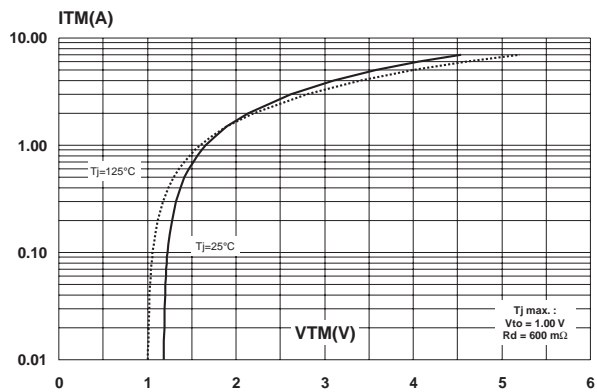
**Fig. 8:** Surge peak on-state current versus number of cycles.



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



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



## PACKAGE MECHANICAL DATA

TO-92

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		1.35			0.053	
B			4.70			0.185
C		2.54			0.100	
D	4.40			0.173		
E	12.70			0.500		
F			3.70			0.146
a			0.50			0.019

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