

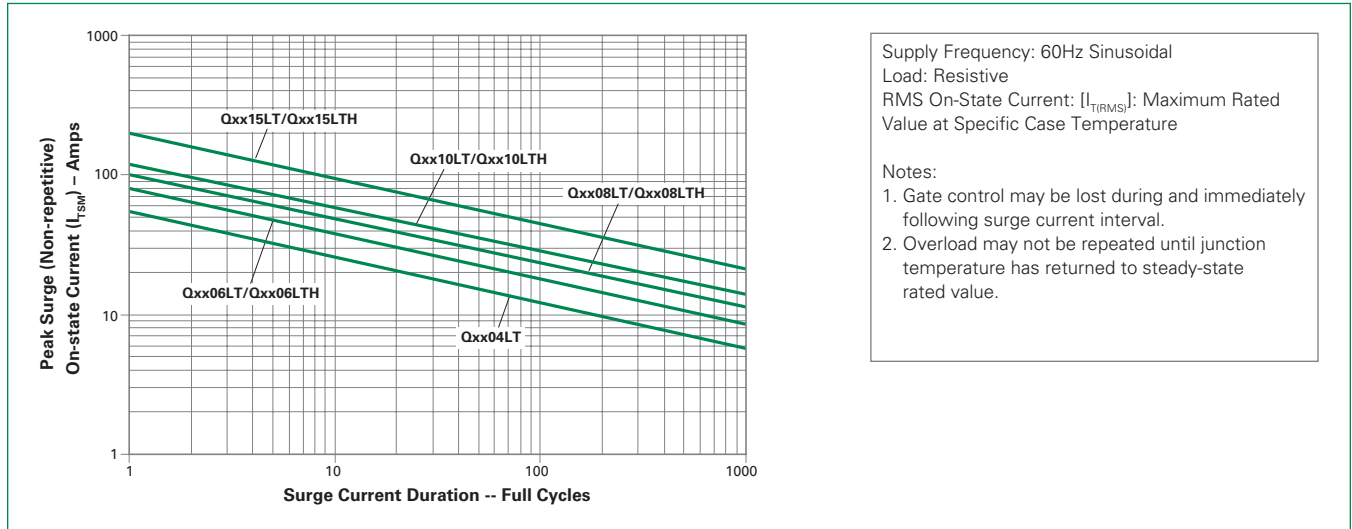






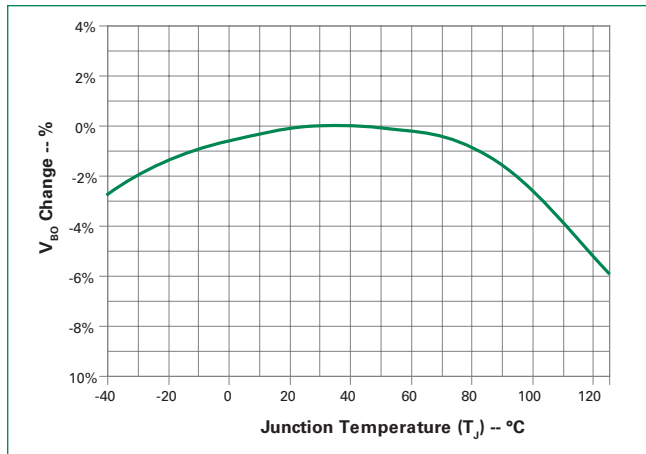


**Figure 7: Surge Peak On-State Current vs. Number of Cycles**

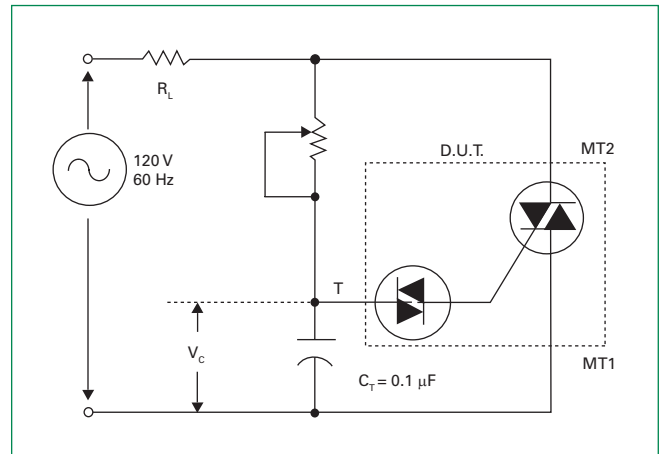


Note: xx = voltage

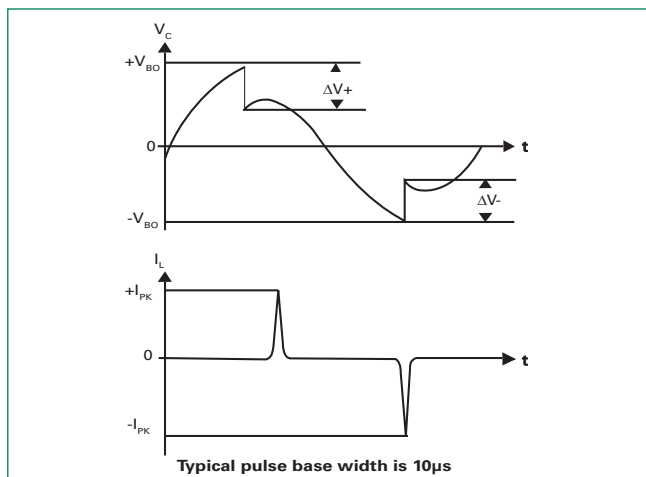
**Figure 8: DIAC  $V_{BO}$  Change vs. Junction Temperature**



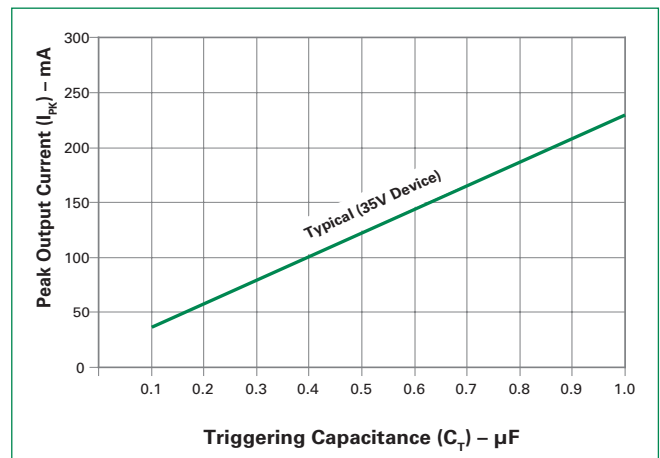
**Figure 9: Test Circuit**



**Figure 10: Test Circuit Waveform**

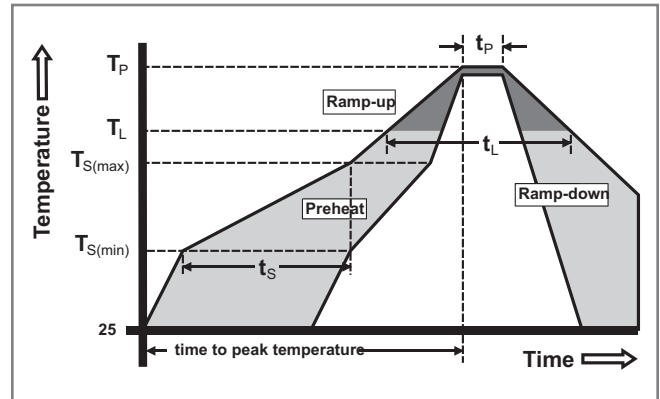


**Figure 11: Peak Output Current vs Triggering Capacitance (Per Figure 9)**



**Soldering Parameters**

Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		5°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		5°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Temperature ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260 <sup>+0/-5</sup> °C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes Max.
Do not exceed		280°C



**Physical Specifications**

<b>Terminal Finish</b>	1005 Matte Tin-plated
<b>Body Material</b>	UL Recognized epoxy meeting flammability classification 94v-0
<b>Lead Material</b>	Copper Alloy

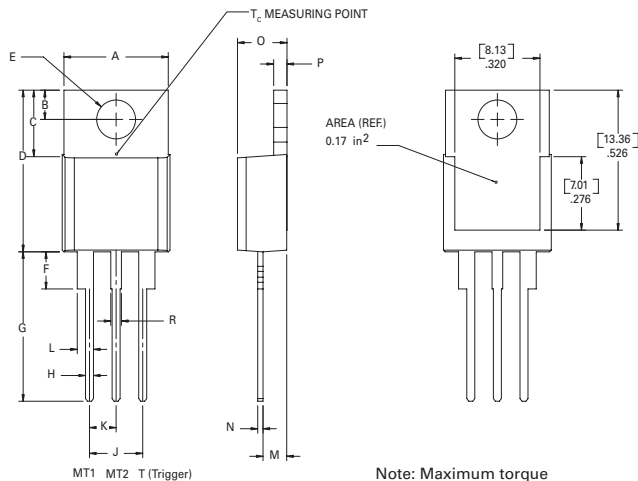
**Design Considerations**

Careful selection of the correct device for the application's operating parameters and environment will go a long way toward extending the operating life of the Thyristor. Good design practice should limit the maximum continuous current through the main terminals to 75% of the device rating. Other ways to ensure long life for a power discrete semiconductor are proper heat sinking and selection of voltage ratings for worst case conditions. Overheating, overvoltage (including dv/dt), and surge currents are the main killers of semiconductors. Correct mounting, soldering, and forming of the leads also help protect against component damage.

**Environmental Specifications**

Test	Specifications and Conditions
<b>High Temperature Voltage Blocking</b>	MIL-STD-750: Method 1040, Condition A Rated $V_{DRM}$ (VAC-peak), 125°C, 1008 hours
<b>Temperature Cycling</b>	MIL-STD-750: Method 1051 -40°C to 150°C, 15-minute dwell, 100 cycles
<b>Biased Temperature &amp; Humidity</b>	EIA/JEDEC: JESD22-A101 320VDC, 85°C, 85%RH, 1008 hours
<b>High Temp Storage</b>	MIL-STD-750: Method 1031 150°C, 1008 hours
<b>Low-Temp Storage</b>	-40°C, 1008 hours
<b>Thermal Shock</b>	MIL-STD-750: Method 1056 0°C to 100°C, 5-minute dwell, 10-second transfer, 10 cycles
<b>Autoclave (Pressure Cooker Test)</b>	EIA/JEDEC: JESD22-A102 121°C, 100%RH, 2atm, 168 hours
<b>Resistance to Solder Heat</b>	MIL-STD-750: Method 2031 260°C, 10 seconds
<b>Solderability</b>	ANSI/J-STD-002, Category 3, Test A
<b>Lead Bend</b>	MIL-STD-750: Method 2036, Condition E

**Dimensions — TO-220AB (L-Package) — Isolated Mounting Tab**



Dimension	Inches		Millimeters	
	Min	Max	Min	Max
A	0.380	0.420	9.65	10.67
B	0.105	0.115	2.67	2.92
C	0.230	0.250	5.84	6.35
D	0.590	0.620	14.99	15.75
E	0.142	0.147	3.61	3.73
F	0.110	0.130	2.79	3.30
G	0.540	0.575	13.72	14.61
H	0.025	0.035	0.64	0.89
J	0.195	0.205	4.95	5.21
K	0.095	0.105	2.41	2.67
L	0.060	0.075	1.52	1.91
M	0.085	0.095	2.16	2.41
N	0.018	0.024	0.46	0.61
O	0.178	0.188	4.52	4.78
P	0.045	0.060	1.14	1.52
R	0.038	0.048	0.97	1.22

**Product Selector**

Part Number	Voltage				Type	Package
	400V	600V	800V	1000V		
Qxx04LT	X	X			Quadrac	TO-220L
Qxx06LT	X	X			Quadrac	TO-220L
Qxx06LTH	X	X			Alternistor Quadrac	TO-220L
Qxx08LT	X	X			Quadrac	TO-220L
Qxx08LTH	X	X			Alternistor Quadrac	TO-220L
Qxx10LT	X	X			Quadrac	TO-220L
Qxx10LTH	X	X			Alternistor Quadrac	TO-220L
Qxx15LT	X	X			Quadrac	TO-220L
Qxx15LTH	X	X			Alternistor Quadrac	TO-220L

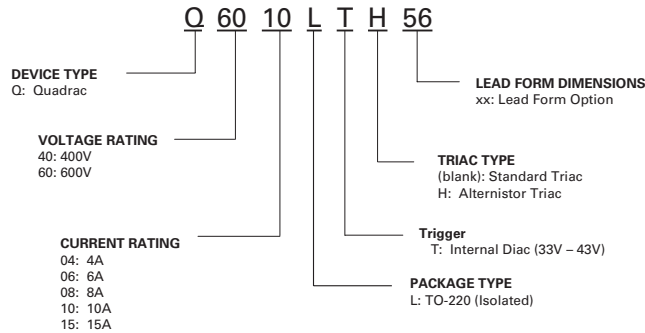
Note: xx = Voltage

**Packing Options**

Part Number	Marking	Weight	Packing Mode	Base Quantity
Qxx04LT	Qxx04LT	2.2 g	Bulk	500
Qxx04LTTP	Qxx04LT	2.2 g	Tube	500 (50 per tube)
Qxx06LT	Qxx06LT	2.2 g	Bulk	500
Qxx06LTTP	Qxx06LT	2.2 g	Tube	500 (50 per tube)
Qxx06LTH	Qxx06LTH	2.2 g	Bulk	500
Qxx06LTHTP	Qxx06LTH	2.2 g	Tube	500 (50 per tube)
Qxx08LT	Qxx08LT	2.2 g	Bulk	500
Qxx08LTTP	Qxx08LT	2.2 g	Tube	500 (50 per tube)
Qxx08LTH	Qxx08LTH	2.2 g	Bulk	500
Qxx08LTHTP	Qxx08LTH	2.2 g	Tube	500 (50 per tube)
Qxx10LT	Qxx10LT	2.2 g	Bulk	500
Qxx10LTTP	Qxx10LT	2.2 g	Tube	500 (50 per tube)
Qxx10LTH	Qxx10LTH	2.2 g	Bulk	500
Qxx10LTHTP	Qxx10LTH	2.2 g	Tube	500 (50 per tube)
Qxx15LT	Qxx15LT	2.2 g	Bulk	500
Qxx15LTTP	Qxx15LT	2.2 g	Tube	500 (50 per tube)
Qxx15LTH	Qxx15LTH	2.2 g	Bulk	500
Qxx15LTHTP	Qxx15LTH	2.2 g	Tube	500 (50 per tube)

Note: xx = Voltage

**Part Numbering System**



**Part Marking System**

TO-220 AB - (L Package)

