

**RoHS Q2L Series (C-Rated) SIDACtor® Device**



**Description**

The Q2L SIDACtor series provides bidirectional transient voltage protection in a low profile, chip scale package (CSP). The small package QFN (Quad Flatpak No-Lead) is ideal for dense board applications such as DSLAMs, T1/E1/J1 cards, and other telecommunication equipment.

**Features**

- RoHS compliant
- Chip Scale Package (CSP) sizing
- Wide range of  $I_{pp}$  ratings including:
  - 500A for 2x10µs GR 1089 waveform
  - 200A for 5x310/10x700µs ITU/YDT waveform
  - 100A for 10x1000µs GR 1089 waveform
  - 150A for 10x560µs TIA-968-A
- Bidirectional transient voltage protection
- Small footprint (QFN)
- Teccor brand SIDACtor technology

**Agency Approvals**

AGENCY      AGENCY FILE NUMBER

     E133083

**Protection solution to meet**

- YD/T 950
- YD/T 993
- YD/T 1082
- GR 1089
- IEC 61000-4-5
- ITU K.20/21
- TIA-968-A

**Electrical Characteristics**

Part Number	Marking	$V_{DRM}$ @ $I_{DRM}=5\mu A$	$V_S$ @100V/µs	$I_H$	$I_S$	$I_T$	$V_T$ @ $I_T=1$ amp	Capacitance @1MHz, 2V bias	
		Volts	Volts	mAmps	mAmps	Amps	Volts	pF	
		Min	Max	Min			Max	Min	Max
P0080Q22CLRP	P-8C	6	25	50	800	2.2	5	35	75
P0300Q22CLRP	P03C	25	40	50	800	2.2	5	25	45
P0640Q22CLRP	P06C	58	77	150	800	2.2	5	55	85
P0720Q22CLRP	P07C	65	88	150	800	2.2	5	50	75
P0900Q22CLRP	P09C	75	98	150	800	2.2	5	45	70
P1100Q22CLRP	P11C	90	130	150	800	2.2	5	45	70
P1300Q22CLRP	P13C	120	160	150	800	2.2	5	40	60
P1500Q22CLRP	P15C	140	180	150	800	2.2	5	35	55
P1800Q22CLRP	P18C	170	220	150	800	2.2	5	35	50
P2300Q22CLRP	P23C	190	260	150	800	2.2	5	30	50
P2600Q22CLRP	P26C	220	300	150	800	2.2	5	30	45
P3100Q22CLRP	P31C	275	350	150	800	2.2	5	30	45
P3500Q22CLRP	P35C	320	400	150	800	2.2	5	25	40

• All measurements are made at an ambient temperature of 25°C.  $I_{pp}$  applies to -40°C through +85°C temperature range.  
 •  $I_{pp}$  is a repetitive surge rating and is guaranteed for the life of the product.

• Listed SIDACtor devices are bidirectional. All electrical parameters and surge ratings apply to forward and reverse polarities.  
 •  $V_S$  is measured at 100 V/µs.  
 • Off-state capacitance is measured at 1MHz with a 2 V bias.

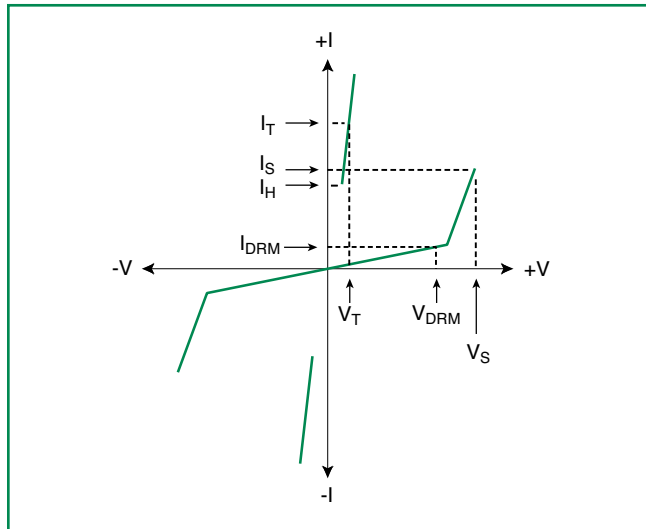
### Surge Ratings

Series	$I_{pp}$					di/dt
	2x10 $\mu$ s	1.2x50 $\mu$ s/8x20 $\mu$ s	10x160 $\mu$ s	10x560 $\mu$ s	10x1000 $\mu$ s	Amps/ $\mu$ s
	Amps	Amps	Amps	Amps	Amps	Max
C	500	400	200	150	100	500

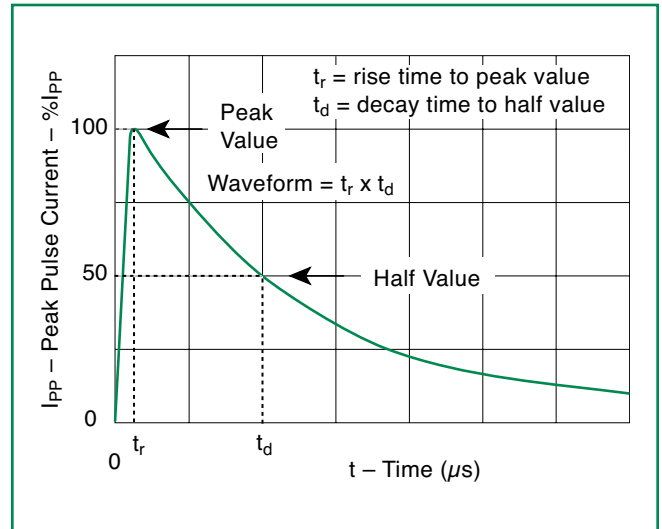
### Thermal Considerations

Package	Symbol	Parameter	Value	Unit
	$T_J$	Operating Junction Temperature Range	-40 to +150	$^{\circ}$ C
	$T_S$	Storage Temperature Range	-65 to +150	$^{\circ}$ C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	120	$^{\circ}$ C/W

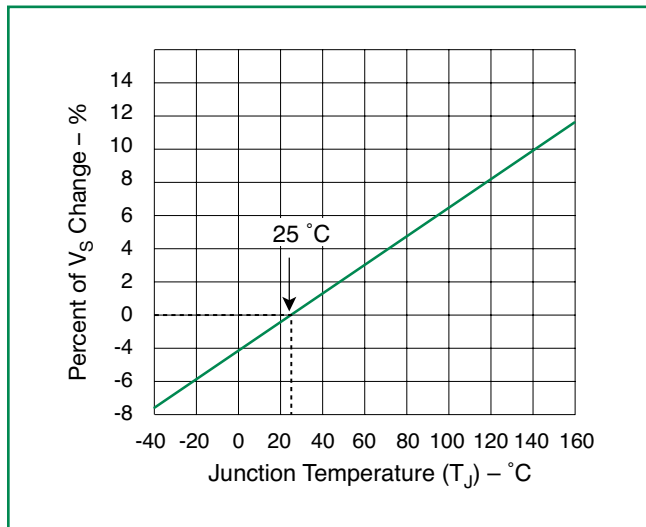
### V-I Characteristics



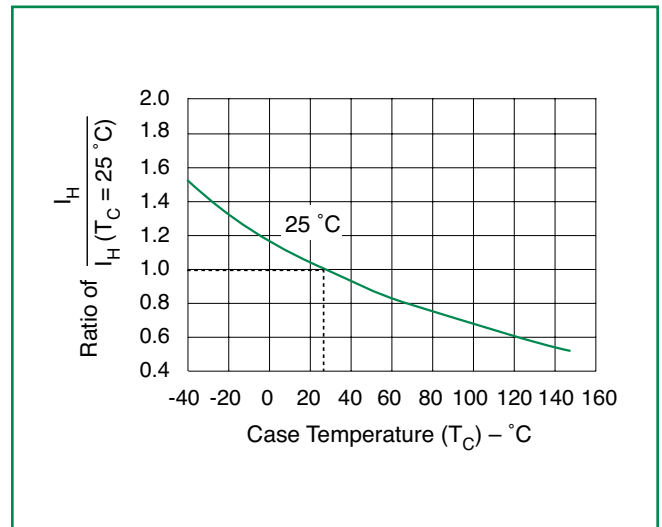
### $t_r$ x $t_d$ Pulse Waveform



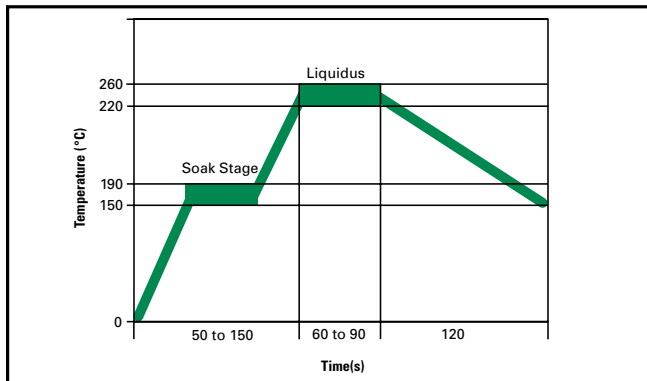
### Normalized $V_S$ Change Versus Junction Temperature



### Normalized DC Holding Current Versus Case Temperature



### Soldering Parameters



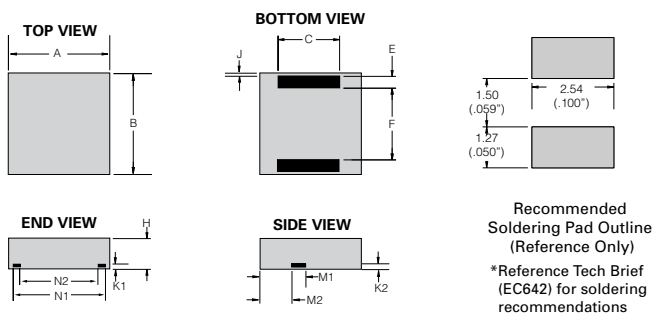
### Physical Specifications

<b>Terminal Material</b>	Matte Tin-plated Copper
<b>Lead Solderability</b>	ANSI/J-STD-002

### Environmental Specifications

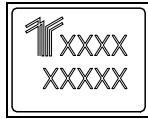
<b>Operating/Storage Temperature</b>	-40° C to ~ +150°C
<b>Passive Aging</b>	125° C, 1000 hours Meet Spec
<b>Humidity Aging</b>	+85°C, 85% R.H. 1000 hours Meet Spec
<b>Thermal Shock</b>	MIL-STD-202 Method 107G +85°C/-40°C 100 times Meet spec
<b>Solvent Resistance</b>	MIL-STD-202, Method 215 No Change
<b>Vibration</b>	MIL-STD-883C, Method 2007.1, Condition A No Change

### Dimensions



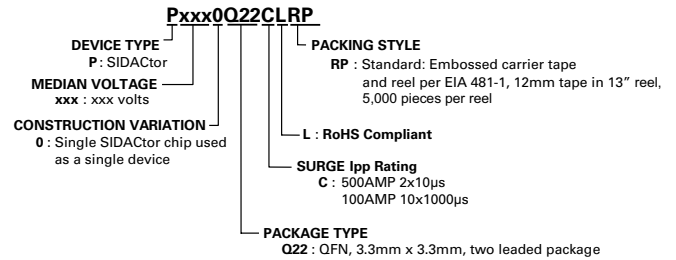
Dimensions	Inches			Millimeters		
	Min	Typ	Max	Min	Typ	Max
A	0.126	0.130	0.134	3.200	3.300	3.400
B	0.126	0.130	0.134	3.200	3.300	3.400
C	0.075	0.079	0.083	1.900	2.000	2.100
E	0.011	0.015	0.019	0.285	0.385	0.485
F	0.088	0.092	0.096	2.230	2.330	2.430
H	0.035	0.039	0.043	0.900	1.000	1.100
J	0.000	0.004	0.008	0.000	0.100	0.200
K1	0.004	0.008	0.012	0.100	0.200	0.300
K2	0.004	0.008	0.012	0.100	0.200	0.300
M1	0.063	0.067	0.071	1.610	1.710	1.810
M2	0.045	0.049	0.053	1.153	1.253	1.353
N1	0.095	0.099	0.103	2.420	2.520	2.620
N2	0.082	0.086	0.090	2.080	2.180	2.280

### Part Marking System



First Line: Product Name (see marking in table)  
 Second Line: Lot number

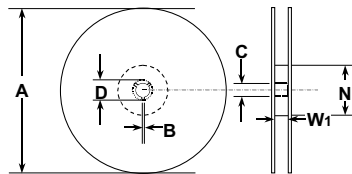
### Part Numbering System



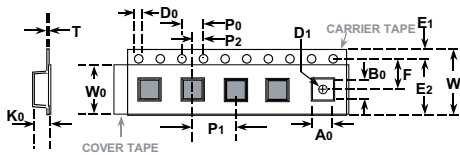
### Packaging

Package Type	Description	Packing Quantity	Added Suffix	Industry Standard
QFN	Embossed Carrier Reel Pack	5000	RP	EIA-481-1

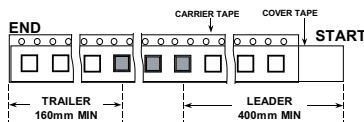
### Tape and Reel Specification



Reel Dimension



Tape Dimension Items



Tape Leader and Trailer Dimensions

Symbols	Description	Inches		Millimeters	
		Minimum	Maximum	Minimum	Maximum
A	Reel Diameter	N/A	12.992	N/A	330.0
B	Drive Spoke Width	0.059	N/A	1.50	N/A
C	Arbor Hole Diameter	0.504	0.531	12.80	13.50
D	Drive Spoke Diameter	0.795	N/A	20.20	N/A
N	Hub Diameter	1.969	N/A	50.00	N/A
W1	Reel Inner Width at Hub	0.488	0.567	12.40	14.40
A0	Pocket Width at bottom	0.138	0.146	3.50	3.70
B0	Pocket Length at bottom	0.138	0.146	3.50	3.70
D0	Feed Hole Diameter	0.059	0.063	1.50	1.60
D1	Pocket Hole Diameter	0.059	N/A	1.50	N/A
E1	Feed hole position 1	0.065	0.073	1.65	1.85
E2	Feed hole position 2	0.400	0.408	10.15	10.35
F	Feed hole center-Pocket hole	0.215	0.219	5.45	5.55
K0	Pocket Depth	0.039	0.051	1.00	1.30
P0	Feed Hole Pitch	0.153	0.161	3.90	4.10
P1	Component Spacing	0.311	0.319	7.90	8.10
P2	Feed hole center-Pocket hole	0.077	0.081	1.95	2.05
T	Carrier Tape Thickness	0.010	0.014	0.25	0.35
W	Embossed Carrier Tape Width	0.453	0.484	11.50	12.30
W0	Cover Tape Width	0.358	0.366	9.10	9.30