

Pxxx0FNL 3kA SIDACtor® series in TO-262M



**Description**

The Pxxx0FNL 3kA SIDACtor® series in TO-262M package are bi-directional protection thyristor devices designed to be used in series with clamping device such as varistors or TVS diodes for protecting AC power input lines.

Targets application are outdoor LED lighting , CATV network, power supply and inverters etc.

**Features and Benefits**

- 3kA 8/20 surge rating
- Automotive grade AEC-Q101 qualified
- AC mains protection between L-N
- low overshoot voltage
- Low on-state voltage
- Surge capability does not degrade after multiple events within its surge ratings
- Fails short circuit if surged in excess of its surge rating
- Fast response in ns
- Pb-free E3 means 2<sup>nd</sup> level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)
- RoHS compliant, lead-free and halogen-free

**Agency Approvals**

Agency	Agency File Number
	E133083

**Schematic Symbol**



**Electrical Characteristics**

Part Number	Marking	$V_{DRM}$ @ $I_{DRM}=5\mu A$	$V_S$ @ 100V/ $\mu s$	$I_H$	$I_S$	$I_T$	$V_T$ @ $I_T=2.2 A$	Capacitance @ 1MHz, 2V bias	
		V min	V max	mA min	mA max	A max	V max	pF min	pF max
P0640FNL	P0640FN	58	77	50	800	2.2	4	250	550
P0720FNL	P0720FN	65	88	50	800	2.2	4	250	550
P0900FNL	P0900FN	75	98	50	800	2.2	4	250	550
P1100FNL	P1100FN	90	130	50	800	2.2	4	250	450
P1300FNL	P1300FN	120	160	50	800	2.2	4	250	450
P1500FNL	P1500FN	140	180	50	800	2.2	4	250	450
P1900FNL	P1900FN	155	220	50	800	2.2	4	250	450
P2300FNL	P2300FN	180	260	50	800	2.2	4	250	450
P2600FNL	P2600FN	220	300	50	800	2.2	4	250	450
P3100FNL	P3100FN	275	350	50	800	2.2	4	250	450
P3500FNL	P3500FN	320	400	50	800	2.2	4	250	450
P3800FNL	P3800FN	350	430	50	800	2.2	4	250	450

Notes:  
- Absolute maximum ratings measured at  $T_A=25^\circ C$  (unless otherwise noted).  
- Components are bi-directional (unless otherwise noted).

**Surge Ratings**

Series	$I_{PP}$	$I_{TSM}$ 50 / 60 Hz	di/dt
	1.2/50 <sup>1</sup> 8/20 <sup>2</sup>		
	A min	A min	A/ $\mu$ s max
N	3000	300	330

Notes:

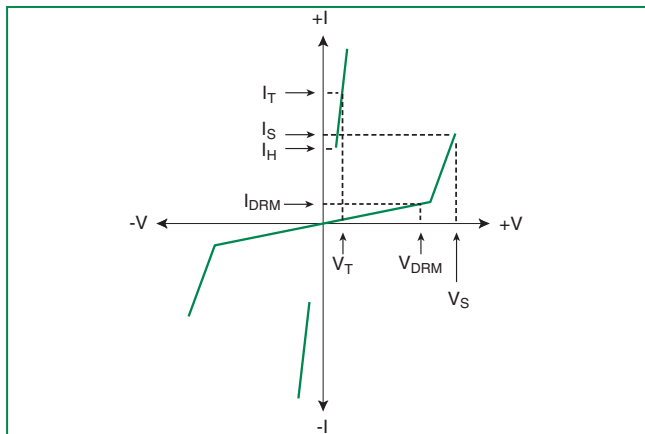
- 1 Voltage waveform in  $\mu$ s
- 2 Current waveform in  $\mu$ s

- Peak pulse current rating ( $I_{pp}$ ) is repetitive and guaranteed for the life of the product.

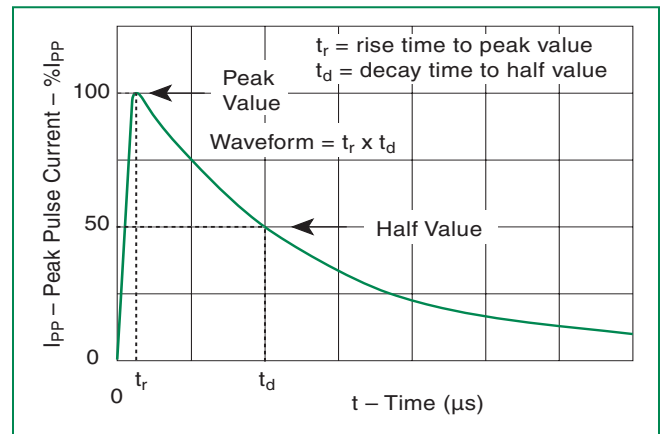
**Thermal Considerations**

Symbol	Parameter	Value	Unit
$T_J$	Operating Junction Temperature Range	-55 to +125	°C
$T_S$	Storage Temperature Range	-55 to +150	°C
$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	75	°C/W

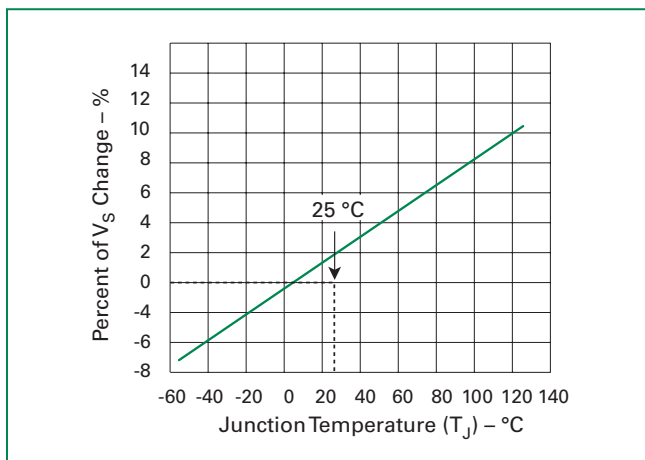
**V-I Characteristics**



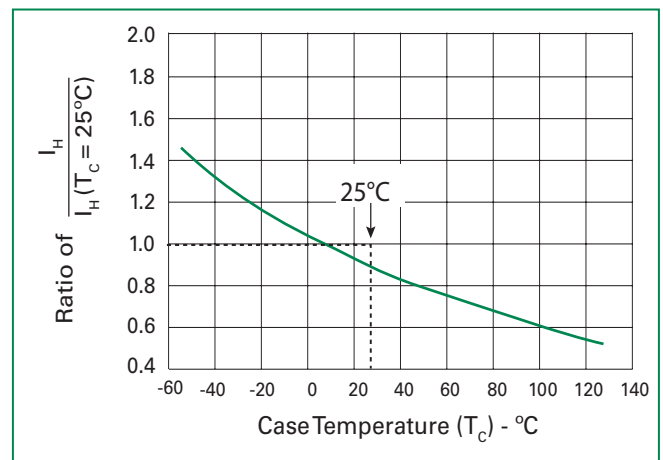
**$t_r \times t_d$  Pulse Waveform**



**Normalized  $V_S$  Change vs. Junction Temperature**



**Normalized DC Holding Current vs. Case Temperature**



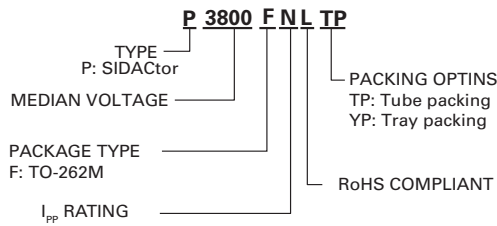
**Wave Soldering Parameters**

Pre Heat (depending on flux only)	- Temperature Min ( $T_{s(min)}$ )	+150°C
	- Temperature Max ( $T_{s(max)}$ )	+200°C
	- Time (Min to Max) ( $t_s$ )	60-180 secs.
Solder Pot Temperature	245-265°C (Max)	
Solder Dwell Time	2-3.5 sec.	
Cooling	-6°C/sec. (Max)	

**Physical Specifications**

<b>Lead Material</b>	Copper Alloy
<b>Terminal Finish</b>	100% Matte-Tin Plated
<b>Body Material</b>	UL recognized epoxy meeting flammability classification V-0

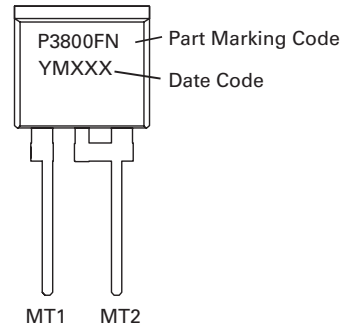
**Part Numbering**



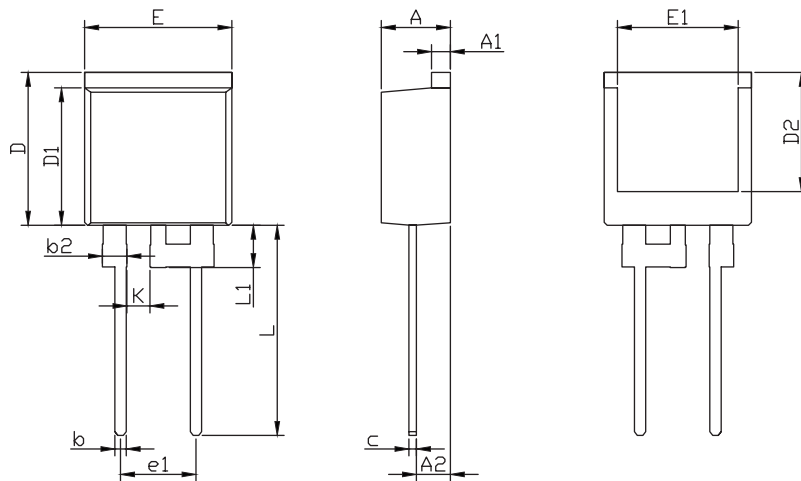
**Environmental Specifications**

<b>High Temp Voltage Blocking</b>	80% Rated $V_{DRM}$ ( $V_{AC Peak}$ ) $T_{Jr}$ 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
<b>Temp Cycling</b>	-55°C to +150°C, 1000cycles. JESD22-A104
<b>Biased Temp &amp; Humidity</b>	80% Rated $V_{DRM}$ up to a maximum of 100V, (+85°C) 85%RH, 1008 hrs. EIA/JEDEC, JESD22-A-101
<b>High Temp Storage</b>	+150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101
<b>UHASt</b>	96 hours at $T_A=130^\circ\text{C}/85\%RH$ , JESD22A-118
<b>Resistance to Solder Heat</b>	+260°C, 30 secs. MIL-STD-750 (Method 2031)

**Part Marking**



**Dimensions - TO-262M ( Isolated )**

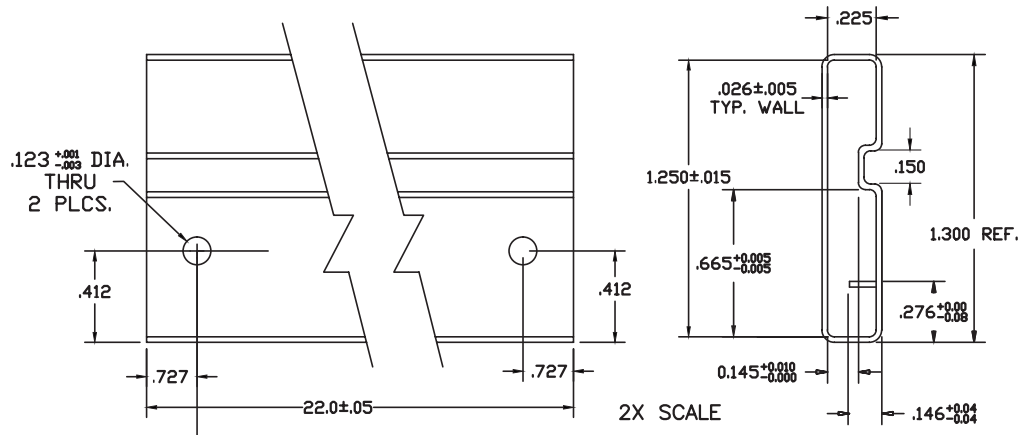


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.178	0.188	4.52	4.78
A1	0.045	0.060	1.14	1.52
A2	0.080	0.115	2.03	2.92
b	0.025	0.035	0.64	0.89
b2	0.060	0.080	1.52	2.03
c	0.018	0.024	0.46	0.61
D	0.394	0.434	10.01	11.03
D1	0.345	0.385	8.75	9.77
D2	0.310	0.350	7.86	8.88
E	0.380	0.420	9.65	10.67
E1	0.302	0.342	7.66	8.68
e1	0.190	0.210	4.82	5.32
K	0.046	0.066	1.16	1.67
L	0.530	0.580	13.46	14.72
L1	0.105	0.130	2.66	3.30

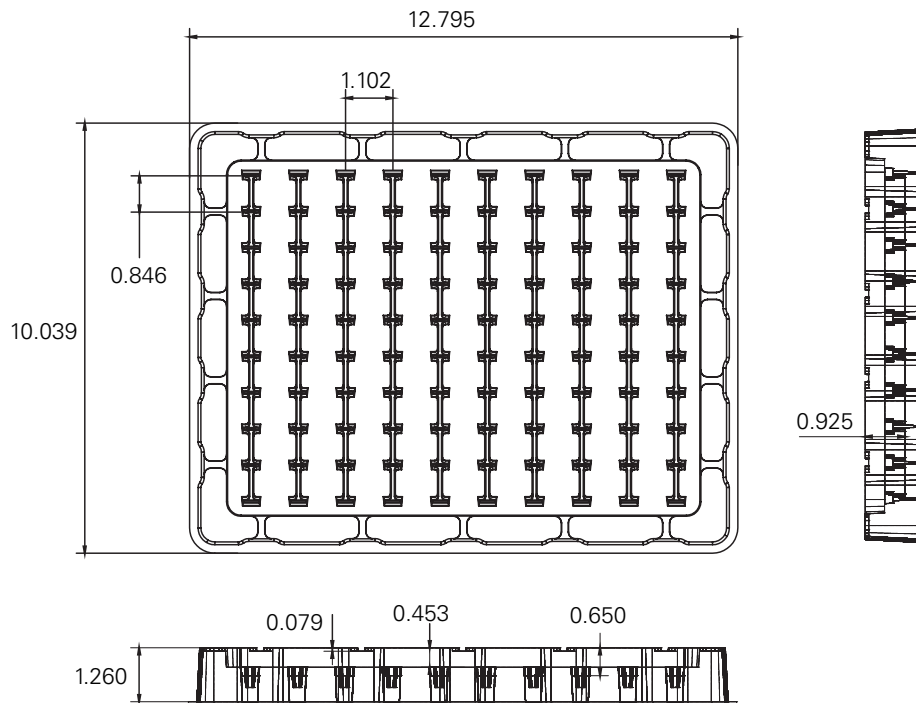
**Packing Options**

Part No.	Marking	Weight	Packing Mode	Base Quantity
Pxxx0FNLTP	Pxxx0FN	1.62g	Tube pack	500 (50 per tube)
Pxxx0FNLYP	Pxxx0FN	1.62g	Tray pack	200 (100per tray)

**Tube Pack Specification – TO-262M ( Isolated )**



**Tray Pack Specification – TO-262M ( Isolated )**



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