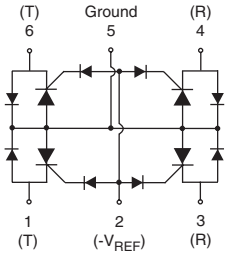
Battrax® Dual Port Negative SLIC Protector

RoHS

Littelfuse



This *Battrax* device is an integrated overvoltage protection solution for SLIC-based (Subscriber Line Interface Circuit) line cards. This six-pin device is constructed using four SCRs and four gate diodes.

The device is referenced to V_{BAT} and conducts when a voltage that is more negative than $-V_{REF}$ is applied to the cathode (Pins 1, 3, 4, or 6) of the SCR. During conduction, all negative transients are shorted to Ground. All positive transients are passed to Ground by the diodes.

For specific diagrams showing these *Battrax* applications, see Figure 6.48 in Section 6, “Reference Designs” of this *Telecom Design Guide*.

Electrical Parameters

Part Number *	V_{DRM} Volts	V_S Volts	V_T Volts	I_{DRM} µAmps	I_{GT} mAmps	I_T Amps	I_H mAmps
B1101U_ 4L	$\|-V_{REF}\| + \|-1.2V\|$	$\|-V_{REF}\| + \|-10V\|$	4	5	100	2.2	100
B1161U_ 4L	$\|-V_{REF}\| + \|-1.2V\|$	$\|-V_{REF}\| + \|-10V\|$	4	5	100	2.2	160
B1201U_ 4L	$\|-V_{REF}\| + \|-1.2V\|$	$\|-V_{REF}\| + \|-10V\|$	4	5	100	2.2	200

* **“L” in part number indicates RoHS compliance.** For non-RoHS compliant device, delete “L” from part number.
For individual “UA” and “UC” surge ratings, see table below.

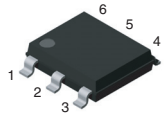
General Notes:
- All measurements are made at an ambient temperature of 25 °C. I_{PP} applies to -40 °C through +85 °C temperature range.
- I_{PP} is a repetitive surge rating and is guaranteed for the life of the product.
- I_{PP} ratings assume a V_{REF} = ±48 V.
- V_{DRM} is measured at I_{DRM}.
- V_S is measured at 100 V/µs.
- V_{REF} maximum value for the negative *Battrax* is -200 V.

Surge Ratings in Amps

Series	I_{PP}									I_{TSM}	di/dt
	0.2x310 * 0.5x700 **	2x10 * 2x10 **	8x20 * 1.2x50 **	10x160 * 10x160 **	10x560 * 10x560 **	5x320 * 9x720 **	10x360 * 10x360 **	10x1000 * 10x1000 **	5x310 * 10x700 **	50 / 60 Hz	
	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps/µs
A	20	150	150	90	50	75	75	45	75	20	500
C	50	500	400	200	150	200	175	100	200	50	500

* Current waveform in µs
** Voltage waveform in µs

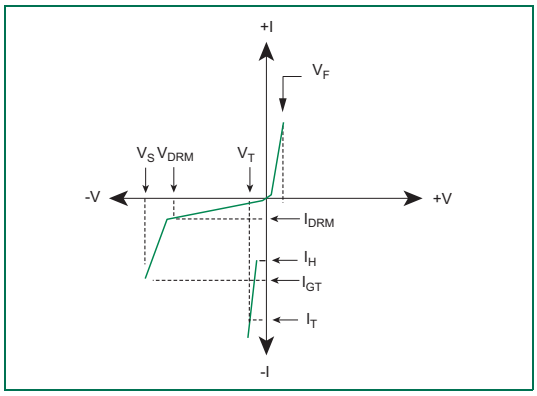
Thermal Considerations

Package	Symbol	Parameter	Value	Unit
Modified MS-013 	T_J	Operating Junction Temperature Range	-40 to +125	°C
	T_S	Storage Temperature Range	-65 to +150	°C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	60	°C/W

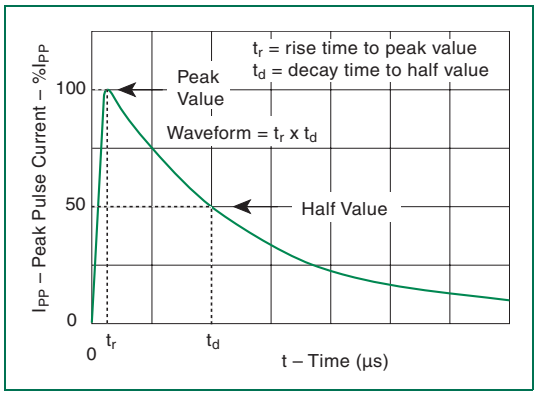
Capacitance Values

Part Number	pF	
	MIN	MAX
B1101UA 4L	50	200
B1101UC 4L	50	200
B1161UA 4L	50	200
B1161UC 4L	50	200
B1201UA 4L	50	200
B1201UC 4L	50	200

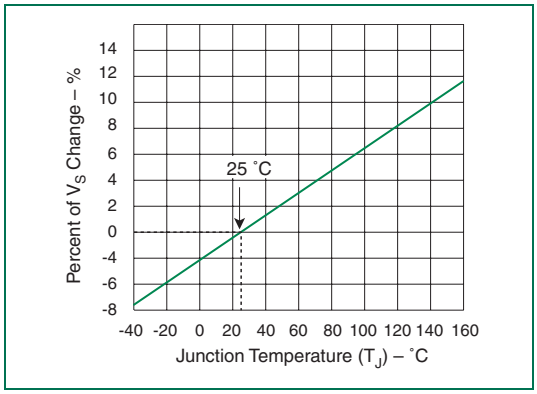
Note: Off-state capacitance (C_O) is measured at 1 MHz with a 2 V bias.



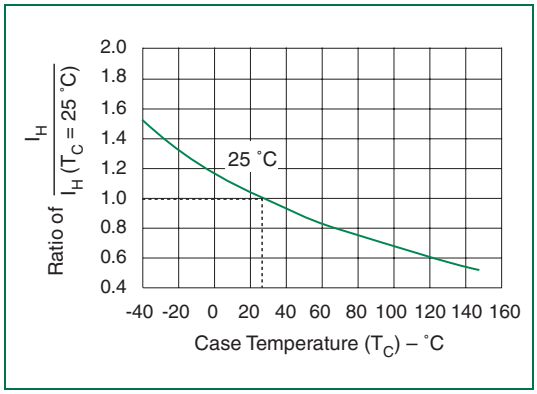
V-I Characteristics



t_r x t_d Pulse Waveform



Normalized V_S Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature