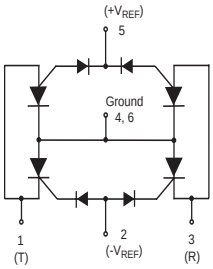
Battrax Dual Positive/Negative SLIC Protector



This *Battrax* device protects Subscriber Line Interface Circuits (SLIC) that use both a positive and negative Ring voltage. It limits transient voltages with rise times of 100 V/µs to V_{REF} ±10 V.

Teccor's six-pin *Battrax* devices are constructed using four SCRs and four gate diodes. The SCRs conduct when a voltage that is more negative than $-V_{REF}$ (and/or more positive than $+V_{REF}$) is applied to the cathode (Pins 1 and 3) of the SCR. During conduction, the SCRs appear as a low-resistive path which forces all transients to be shorted to ground.

For a diagram of a *Battrax* application, see Figure 3.30.

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	C_O pF
B3104U_	$\|-V_{REF}\| + \|\pm1.2V\|$	$\|-V_{REF}\| + \|\pm10V\|$	4	5	100	1	100	50
B3164U_	$\|-V_{REF}\| + \|\pm1.2V\|$	$\|-V_{REF}\| + \|\pm10V\|$	4	5	100	1	160	50
B3204U_	$\|-V_{REF}\| + \|\pm1.2V\|$	$\|-V_{REF}\| + \|\pm10V\|$	4	5	100	1	200	50

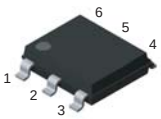
* For individual "UA" and "UC" surge ratings, see table below.

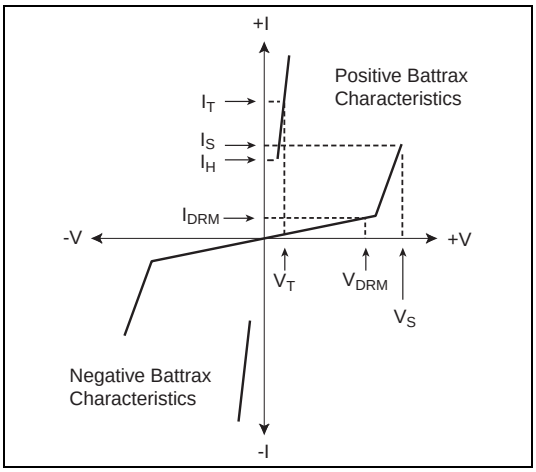
General Notes:
- All measurements are made at an ambient temperature of 25 °C. I_{PP} applies to -40 °C through +85 °C temperature range.
- I_{PP} is a repetitive surge rating and is guaranteed for the life of the product.
- I_{PP} ratings assume a V_{REF} = ±48 V.
- V_{DRM} is measured at I_{DRM}.
- V_S is measured at 100 V/µs.
- Off-state capacitance is measured at 1 MHz with a 2 V bias and is a typical value. "UC" product is approximately 2x the listed value.
- Positive Battrax information is preliminary data.
- V_{REF} maximum value for the negative Battrax is -200 V.
- V_{REF} maximum value for the positive Battrax is 110 V.

Surge Ratings

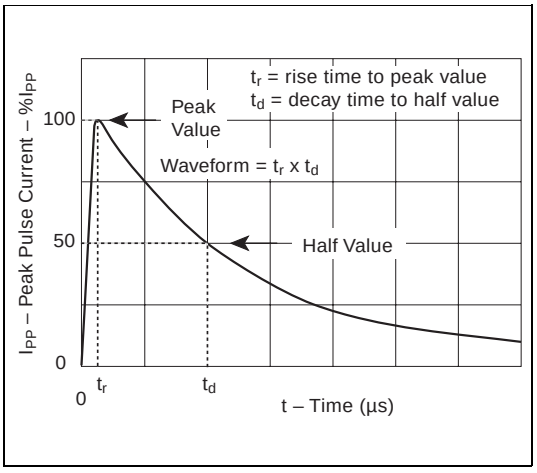
Series	I_{PP} 2x10 µs Amps	I_{PP} 8x20 µs Amps	I_{PP} 10x160 µs Amps	I_{PP} 10x560 µs Amps	I_{PP} 10x1000 µs Amps	I_{TSM} 60 Hz Amps	di/dt Amps/µs
A	150	150	90	50	45	20	500
C	500	400	200	120	100	50	500

Thermal Considerations

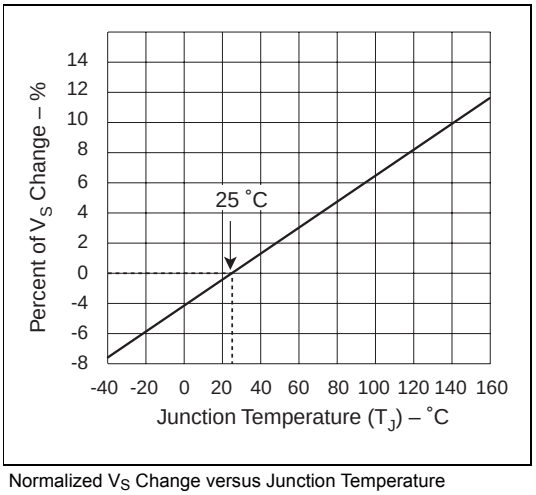
Package	Symbol	Parameter	Value	Unit
Modified MS-013 	T_J	Operating Junction Temperature Range	-40 to +125	°C
	T_S	Storage Temperature Range	-65 to +150	°C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	60	°C/W



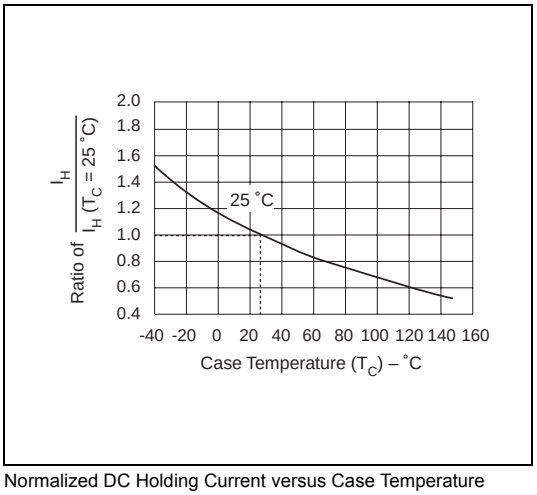
V-I Characteristics



t_r x t_d Pulse Wave-form



Normalized V_S Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature