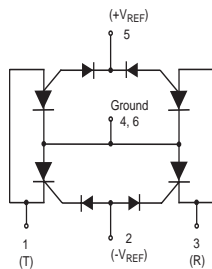


## Battrax Dual Positive/Negative SLIC Protector



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/ $\mu$ s to  $V_{REF} \pm 10$  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 3.45.

### Electrical Parameters

Part Number *	$V_{DRM}$ Volts	$V_S$ Volts	$V_T$ Volts	$I_{DRM}$ $\mu$ Amps	$I_{GT}$ mAmps	$I_T$ Amps	$I_H$ mAmps	$C_O$ pF
B3104U_	$ -V_{REF}  +  \pm 1.2V $	$ -V_{REF}  +  \pm 10V $	4	5	100	2.2	100	50
B3164U_	$ -V_{REF}  +  \pm 1.2V $	$ -V_{REF}  +  \pm 10V $	4	5	100	2.2	160	50
B3204U_	$ -V_{REF}  +  \pm 1.2V $	$ -V_{REF}  +  \pm 10V $	4	5	100	2.2	200	50

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

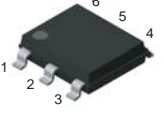
#### General Notes:

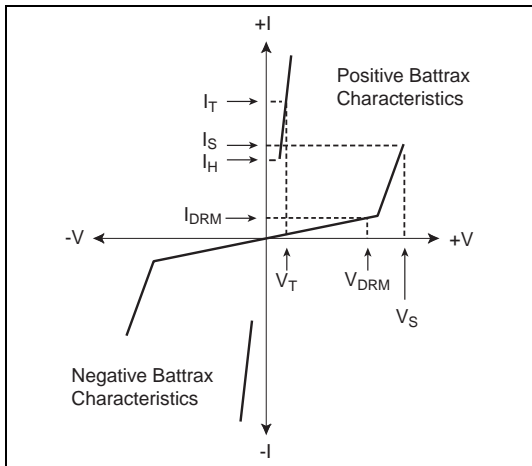
- All measurements are made at an ambient temperature of 25 °C.  $I_{PP}$  applies to -40 °C through +85 °C temperature range.
- $I_{PP}$  is a repetitive surge rating and is guaranteed for the life of the product.
- $I_{PP}$  ratings assume a  $V_{REF} = \pm 48$  V.
- $V_{DRM}$  is measured at  $I_{DRM}$ .
- $V_S$  is measured at 100 V/ $\mu$ s.
- 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

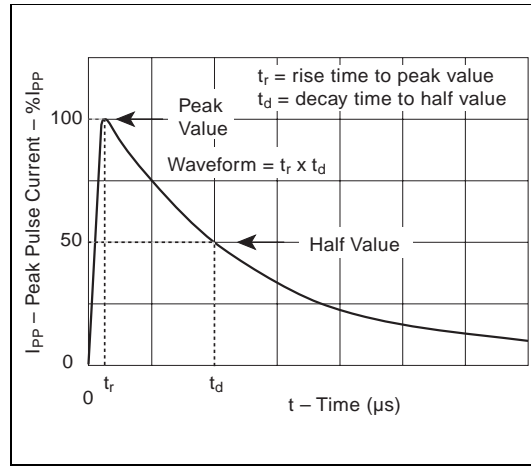
Series	$I_{PP}$ 2x10 $\mu$ s Amps	$I_{PP}$ 8x20 $\mu$ s Amps	$I_{PP}$ 10x160 $\mu$ s Amps	$I_{PP}$ 10x560 $\mu$ s Amps	$I_{PP}$ 10x1000 $\mu$ s Amps	$I_{TSM}$ 60 Hz Amps	di/dt Amps/ $\mu$ s
A	150	150	90	50	45	20	500
C	500	400	200	120	100	50	500

### Thermal Considerations

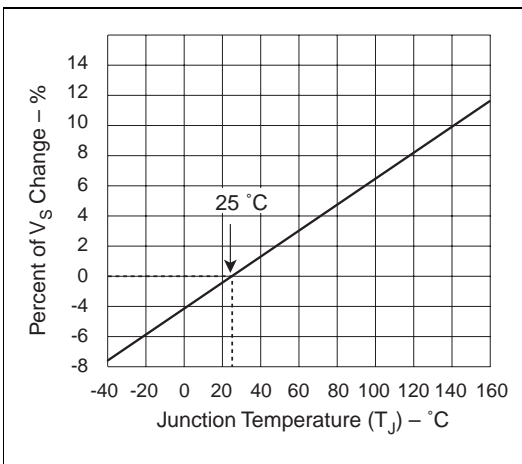
Package	Symbol	Parameter	Value	Unit
	$T_J$	Operating Junction Temperature Range	-40 to +125	°C
	$T_S$	Storage Temperature Range	-65 to +150	°C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	60	°C/W



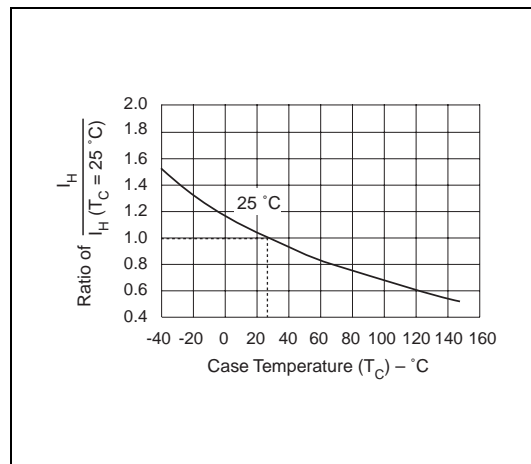
V-I Characteristics



$t_r \times t_d$  Pulse Wave-form



Normalized  $V_S$  Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature