Absolute Maximum Ratings, T_A = 25 °C (Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Repetitive peak off-state voltage (see Note 1)	V_{DRM}	+100 -200	V
Non-repetitive peak impulse current (see Notes 2 and 3) 2/10 µs (GR-1089-CORE, 2/10 µs voltage wave shape) 8/20 µs (IEC 61000-4-5, 1.2/50 µs voltage, 8/20 µs current combination wave generator) 10/160 µs (TIA-968-A, 10/160 µs voltage wave shape) 5/310 µs (ITU-T K.44, 10/700 µs voltage wave shape used in K.20/21/45) 5/320 µs (TIA-968-A, 9/720 µs voltage wave shape) 10/560 µs (TIA-968-A, 10/560 µs voltage wave shape) 10/1000 µs (GR-1089-CORE, 10/1000 µs voltage wave shape)	I_{PPSM}	 ±500 ±300 ±250 ±200 ±200 ±160 ±100	A
Non-repetitive peak on-state current (see Notes 2, 3 and 4) 20 ms, 50 Hz (full sine wave) 16.7 ms, 60 Hz (full sine wave) 1000 s, 50 Hz or 60 Hz a.c.	I_{TSM}	 55 60 2.2	A
Initial rate of rise of on-state currrent, exponential current ramp. Maximum ramp value < 200 A	di_T/dt	400	A/µs
Junction temperature	T_J	-40 to +150	°C
Storage temperature range	T_{stg}	-65 to +150	°C

NOTES: 1. See Figure 6 for voltages at other temperatures.
2. Initially the device must be in thermal equilibrium with T_J = 25 °C.
3. The surge may be repeated after the device returns to its initial conditions.
4. EIA/JESD51-2 environment and EIA/JESD51-3 PCB with standard footprint dimensions connected with 5 A rated printed wiring track widths. See Figure 5 for the current ratings at other durations. Derate current values at -0.61 %/°C for ambient temperatures above 25 °C.

Overload Ratings, T_A = 25 °C (Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Maximum overload on-state current without open circuit, 50 Hz or 60 Hz a.c. (see note 5) 0.03 s 0.07 s 1.6 s 5.0 s 1000 s	$I_{T(OV)M}$	 60 40 8 7 2.2	A rms

NOTE: 5. Peak overload on-state current during a.c. power cross tests of GR-1089-CORE and UL 1950/60950. These electrical stress levels may damage the TISP4A250H3BJ silicon die. After test, the pass criterion is either that the device is functional or, if it is faulty, that it has a short-circuit fault mode. In the short-circuit fault mode, the following equipment is protected as the device is a permanent short across the line. The equipment would be unprotected if an open-circuit fault mode developed.

Electrical Characteristics, T_A = 25 °C (Unless Otherwise Noted)

Parameter		Test Conditions		Min	Typ	Max	Unit
I_{DRM}	Repetitive peak off-state current	$V_D = V_{DRM}$	T_A = 25 °C T_A = 85 °C			±5 ±10	µA
$V_{(BO)}$	Breakover voltage	dv/dt = ±250 V/ms, R_{SOURCE} = 300 Ω				+125 -250	V
$I_{(BO)}$	Breakover current	dv/dt = ±250 V/ms, R_{SOURCE} = 300 Ω		±150		±600	mA
V_T	On-state voltage	I_T = ±5 A, t_w = 100 µs				±3	V
I_H	Holding current	I_T = ±5 A, di/dt = ±30 mA/ms		±150		±600	mA
dv/dt	Critical rate of rise of off-state voltage	Linear voltage ramp Maximum ramp value < 0.85V_{DRM}		±5			kV/µs
C_O	Off-state capacitance	f = 1 MHz, V_d = 1 V rms	V_D = 2 V			72	pF

Thermal Characteristics

Parameter		Test Conditions	Min	Typ	Max	Unit
$R_{\theta JA}$	Junction to ambient thermal resistance	EIA/JESD51-3 PCB, $I_T = I_{TSM(1000)}$ (see Note 6)			113	°C/W
		265 mm x 210 mm populated line card, 4-layer PCB, $I_T = I_{TSM(1000)}$		50		

NOTE: 6. EIA/JESD51-2 environment and PCB has standard footprint dimensions connected with 5 A rated printed wiring track widths.

Parameter Measurement Information

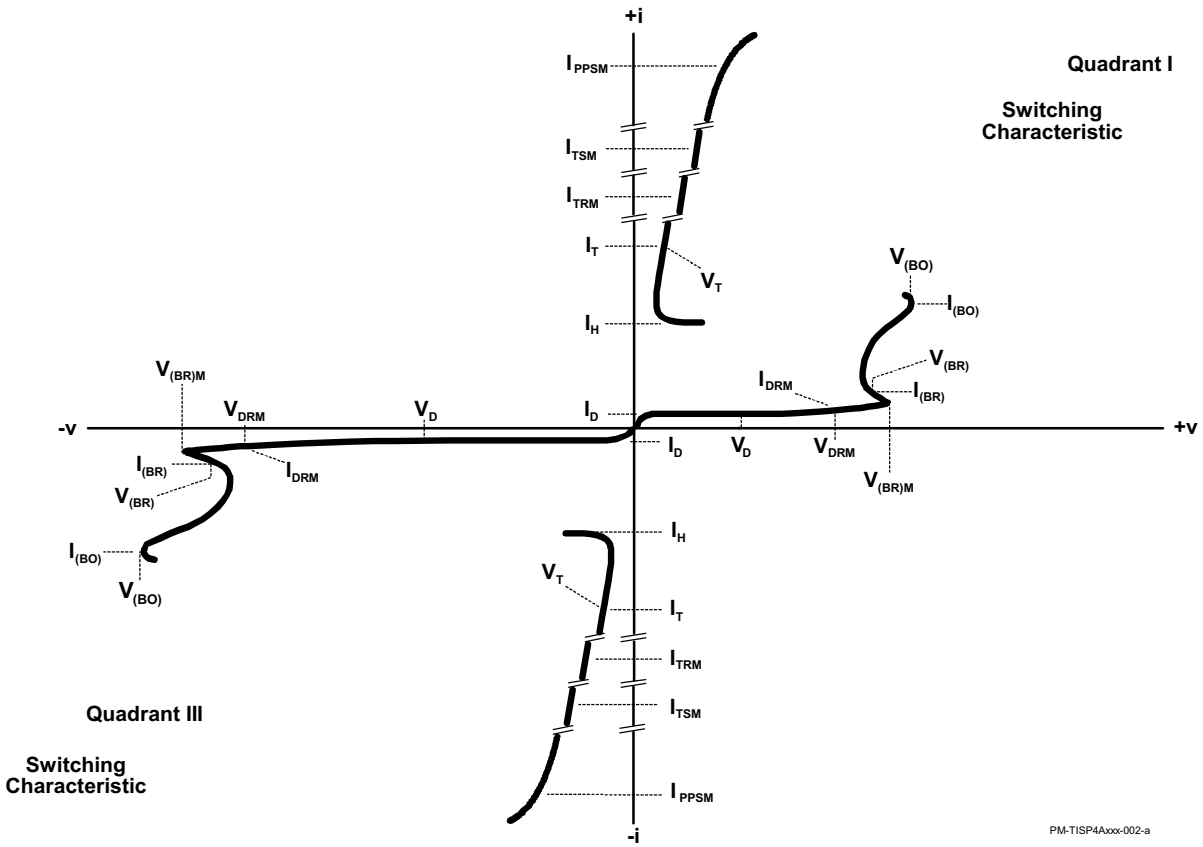

Figure 1. Voltage-Current Characteristic for the Ring and Ground Terminals
All Measurements are Referenced to the Ground Terminal

Typical Characteristics

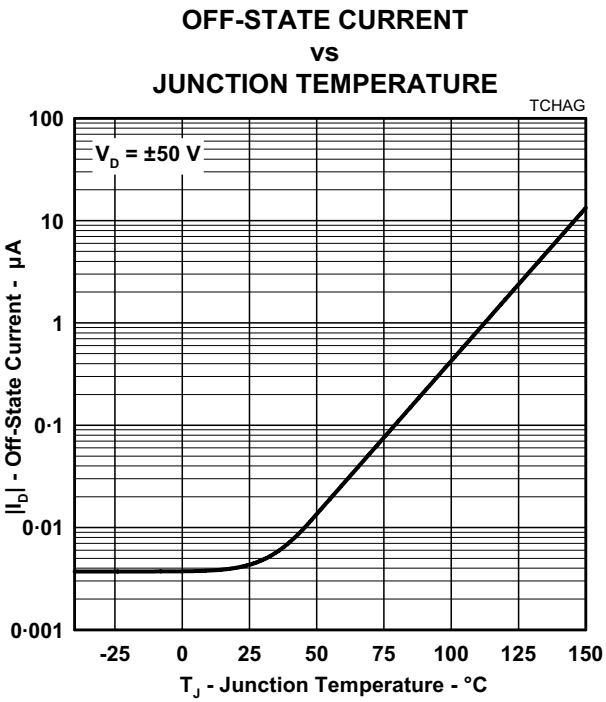

Figure 2.

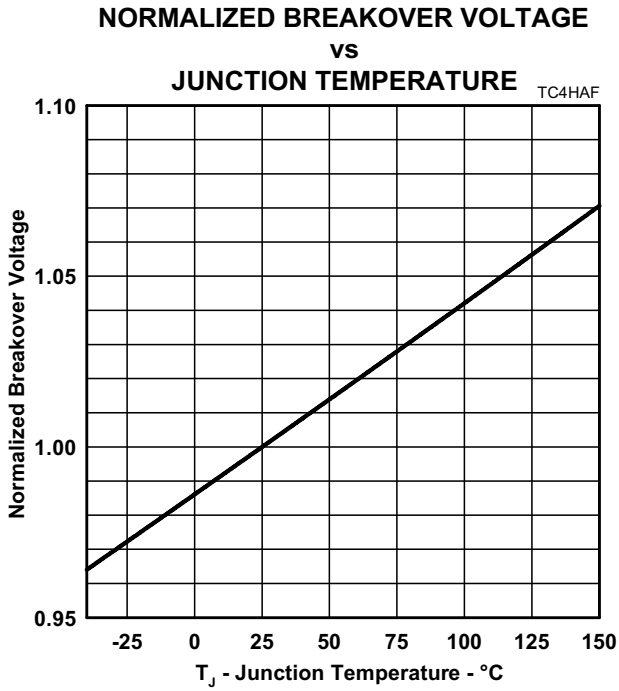

Figure 3.

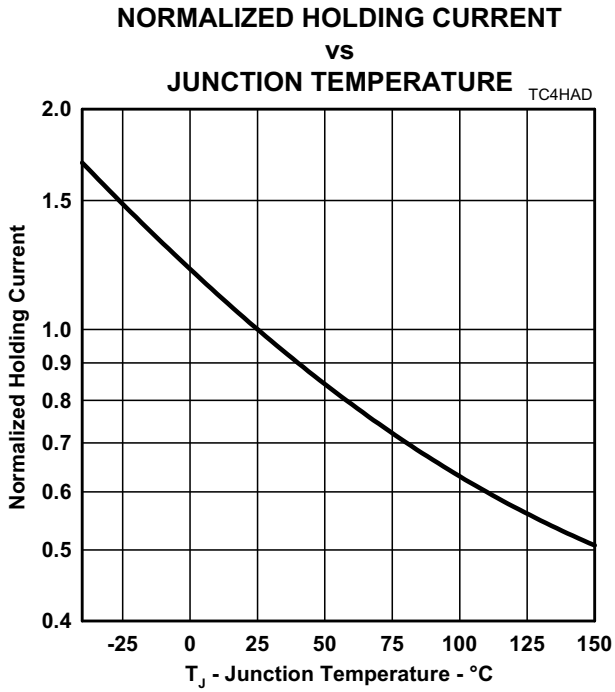

Figure 4.

Rating and Thermal Information

NON-REPETITIVE PEAK ON-STATE CURRENT vs CURRENT DURATION

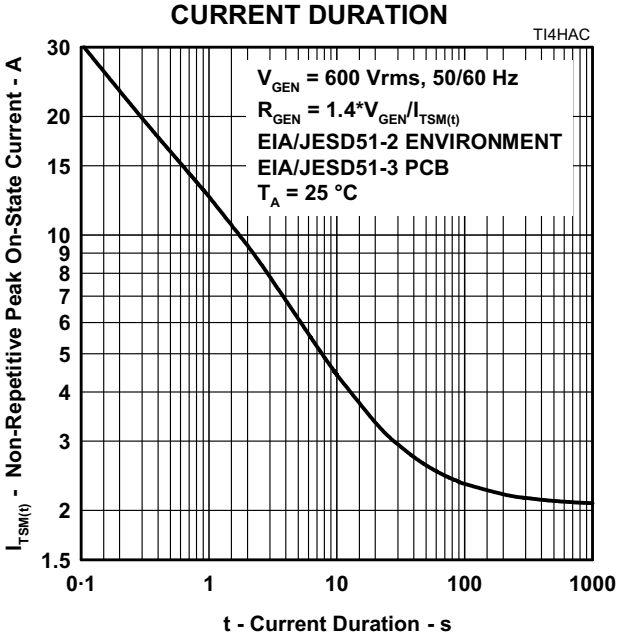

Figure 5.

V_{DRM} DERATING FACTOR vs MINIMUM AMBIENT TEMPERATURE

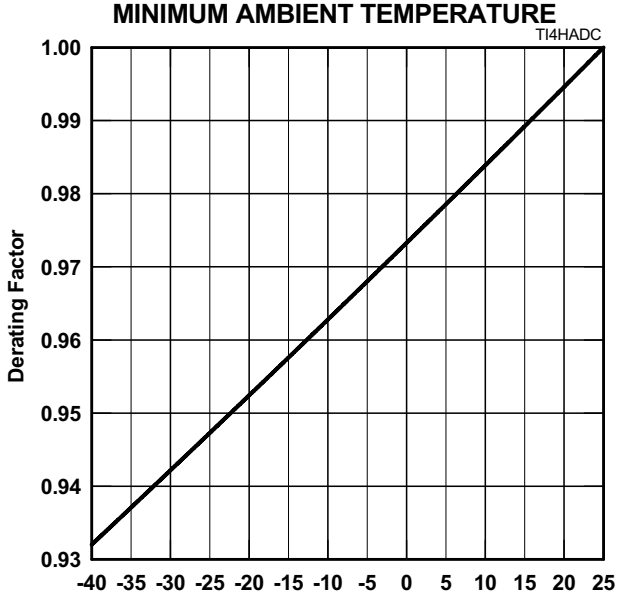

Figure 6.

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Applications Information

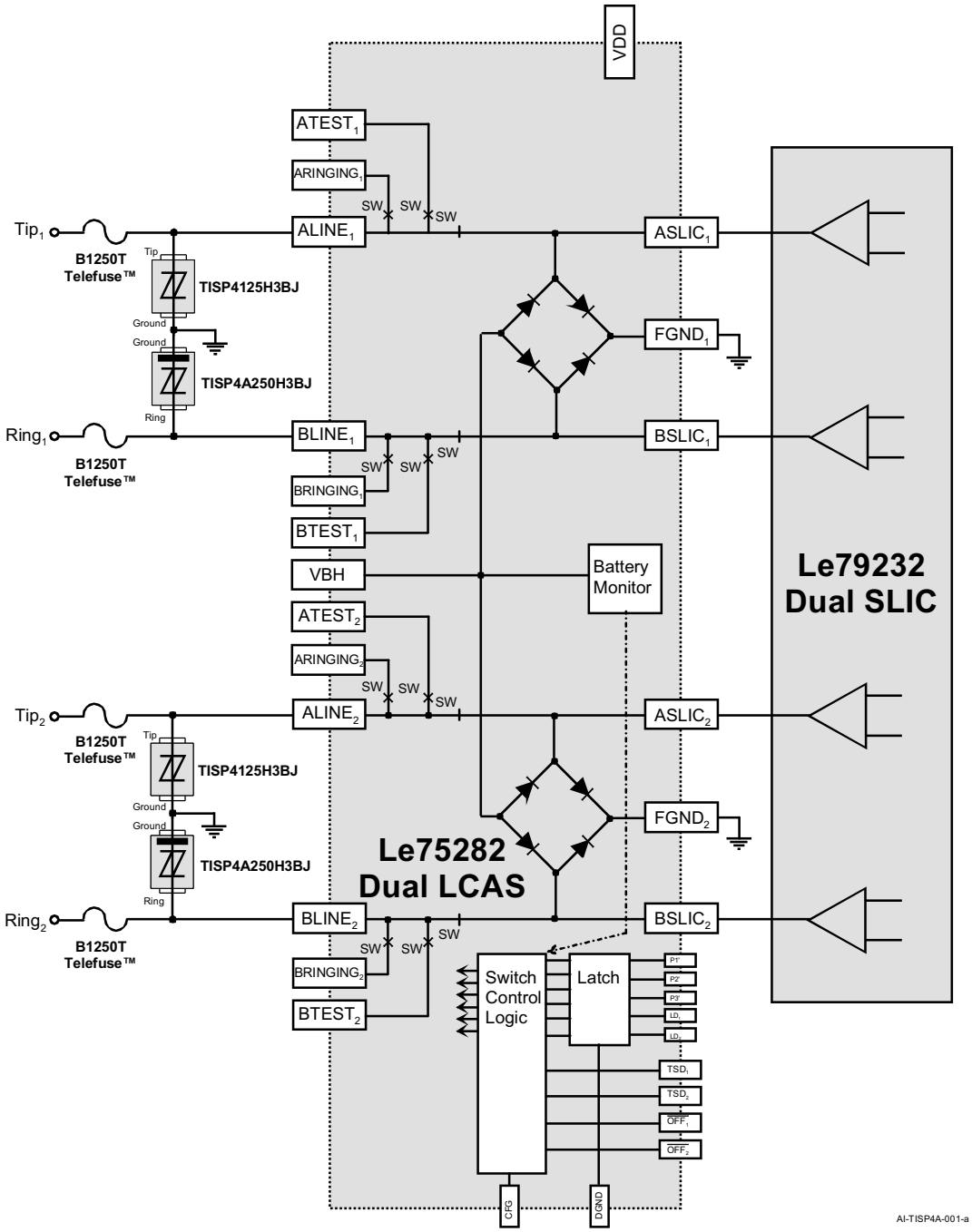

Figure 7. Typical Application Circuit

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