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

Rating	Symbol	Value	Unit
Repetitive peak off-state voltage $V_{G1(Line)}$ = 0,V_{G2} ≥ +5 V $V_{G2(Line)}$ = 0,V_{G1} ≥ -5 V	V_{DRM}	-120 +120	V
Non-repetitive peak impulse current (see Notes 1, 2, 3 and 4) 2/10 µs (Telcordia GR-1089-CORE) 5/310 µs (ITU-T K.20, K.21 & K.45, K.44 open-circuit voltage wave shape 10/700 ms) 10/1000 µs (Telcordia GR-1089-CORE)	I_{PPSM}	 ±150 ±80 ±50	A
Non-repetitive peak on-state current, 50 Hz / 60 Hz (see Notes 1, 2, 3 and 5) 0.2 s 1 s 900 s	I_{TSM}	 9.0 5.0 1.7	A
Maximum negative battery supply voltage	V_{G1M}	-110	V
Maximum positive battery supply voltage	V_{G2M}	+110	V
Maximum differential battery supply voltage	$\Delta V_{(BAT)M}$	220	V
Junction temperature	T_J	-40 to +150	°C
Storage temperature range	T_{stg}	-65 to +150	°C

NOTES: 1. Initially the device must be in thermal equilibrium with T_J = 25 °C. The surge may be repeated after the device returns to its initial conditions.
2. The rated current values may be applied to either of the Line to Ground terminal pairs. Additionally, both terminal pairs may have their rated current values applied simultaneously (in this case the Ground terminal current will be twice the rated current value of a single terminal pair).
3. Rated currents only apply if pins 6 & 7 (Ground) are connected together.
4. Applies for the following bias conditions: V_{G1} = -20 V to -110 V, V_{G2} = 0 V to +110 V.
5. EIA/JESD51-2 environment and EIA/JESD51-7 high effective thermal conductivity test board (multi-layer) connected with 0.6 mm printed wiring track widths.

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

Parameter		Test Conditions		Min	Typ	Max	Unit
I_D	Off-state current	$V_D = V_{DRM}$, $V_{G1(Line)}$ = 0, V_{G2} ≥ +5 V $V_D = V_{DRM}$, $V_{G2(Line)}$ = 0, V_{G1} ≥ -5 V	T_A = 25 °C T_A = 85 °C T_A = 25 °C T_A = 85 °C			-5 -50 +5 +50	µA
$I_{G1(Line)}$	Negative-gate leakage current	$V_{G1(Line)}$ = -220 V				- 5	µA
$I_{G2(Line)}$	Positive-gate leakage current	$V_{G2(Line)}$ = +220 V				+ 5	µA
$V_{G1L(BO)}$	Gate - Line impulse breakover voltage	V_{G1} = -100 V, I_T = -100 A (see Note 6) V_{G1} = -100 V, I_T = -30 A	2/10 µs 10/1000 µs			-15 -11	V
$V_{G2L(BO)}$	Gate - Line impulse breakover voltage	V_{G2} = +100 V, I_T = +100 A (see Note 6) V_{G2} = +100 V, I_T = +30 A	2/10 µs 10/1000 µs			+15 +11	V
I_H-	Negative holding current	V_{G1} = -60 V, I_T = -1 A, di/dt = 1 A/ms		-150			mA
I_{G1T}	Negative-gate trigger current	I_T = -5 A,$t_{p(g)}$ ≥ 20 µs, V_{G1} = -60 V				+ 5	mA
I_{G2T}	Positive-gate trigger current	I_T = 5 A,$t_{p(g)}$ ≥ 20 µs, V_{G2} = 60 V				- 5	mA
C_O	Line - Ground off-state capacitance	f = 1 MHz, V_D = -3 V, G1 & G2 open circuit			33		pF

NOTE: 6. Voltage measurements should be made with an oscilloscope with limited bandwidth (20 MHz) to avoid high frequency noise.

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

Parameter		Test Conditions	Min	Typ	Max	Unit
$R_{\theta JA}$	Junction to ambient thermal resistance	EIA/JESD51-7 PCB, EIA/JESD51-2 Environment, P_{TOT} = 4 W (See Note 7)		55		°C/W

NOTE 7. EIA/JESD51-7 high effective thermal conductivity test board (multi-layer) connected with 0.6 mm printed wiring track widths.

Parameter Measurement Information

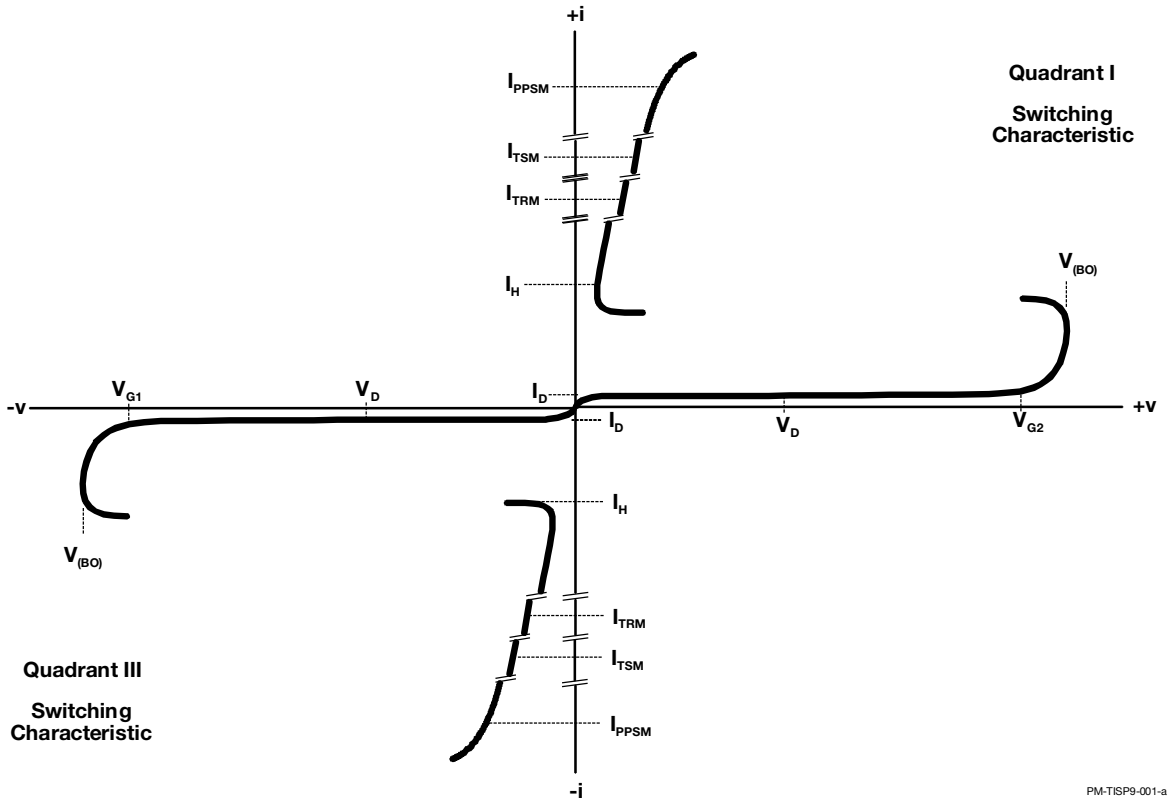

Figure 1. Voltage-Current Characteristic
Unless Otherwise Noted, All Voltages are Referenced to the Ground Terminal

Typical Characteristics

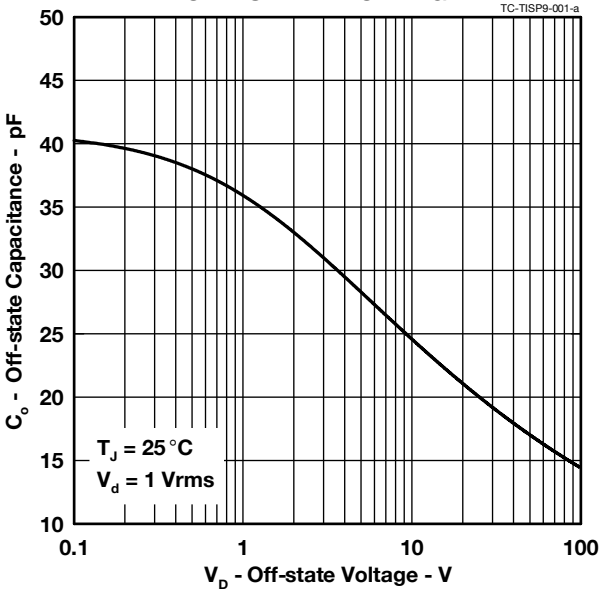

Figure 2.

Thermal Information

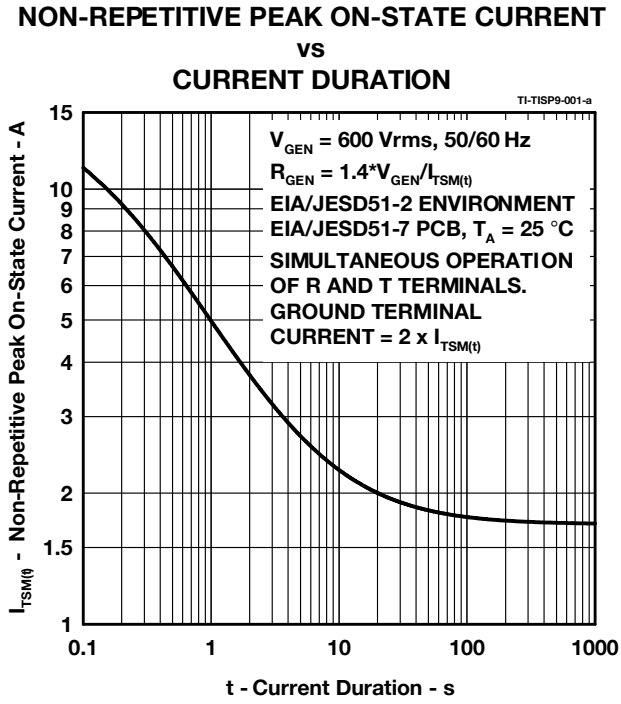

Figure 3.

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APPLICATIONS INFORMATION

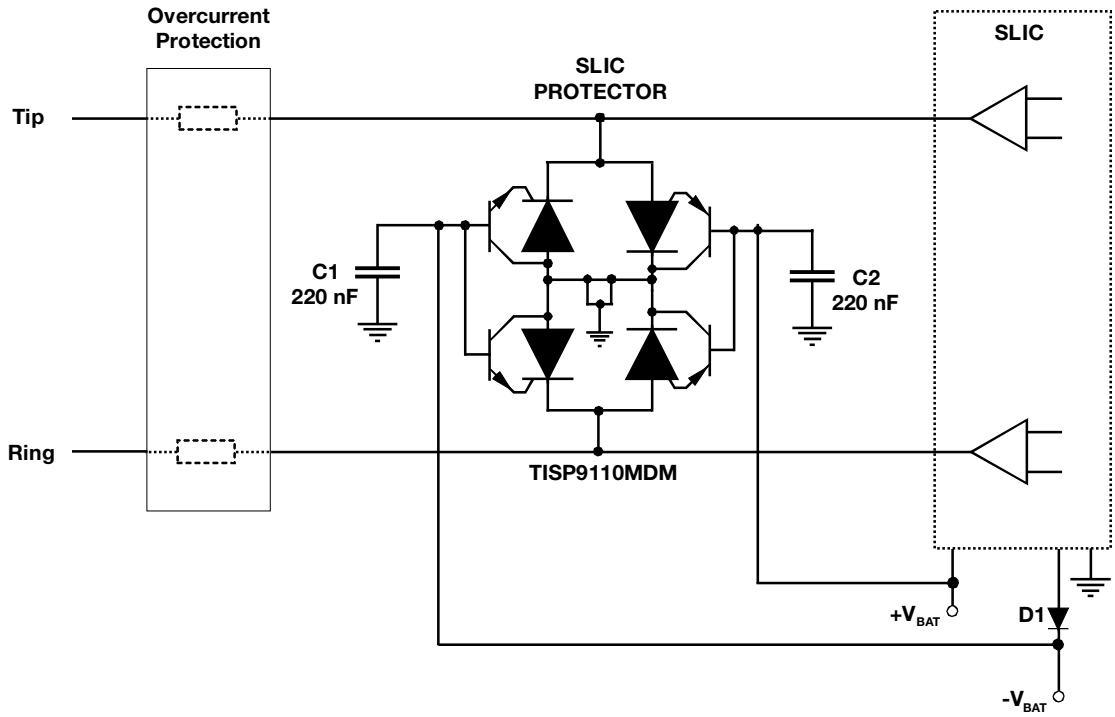

Figure 4. Typical Application Diagram

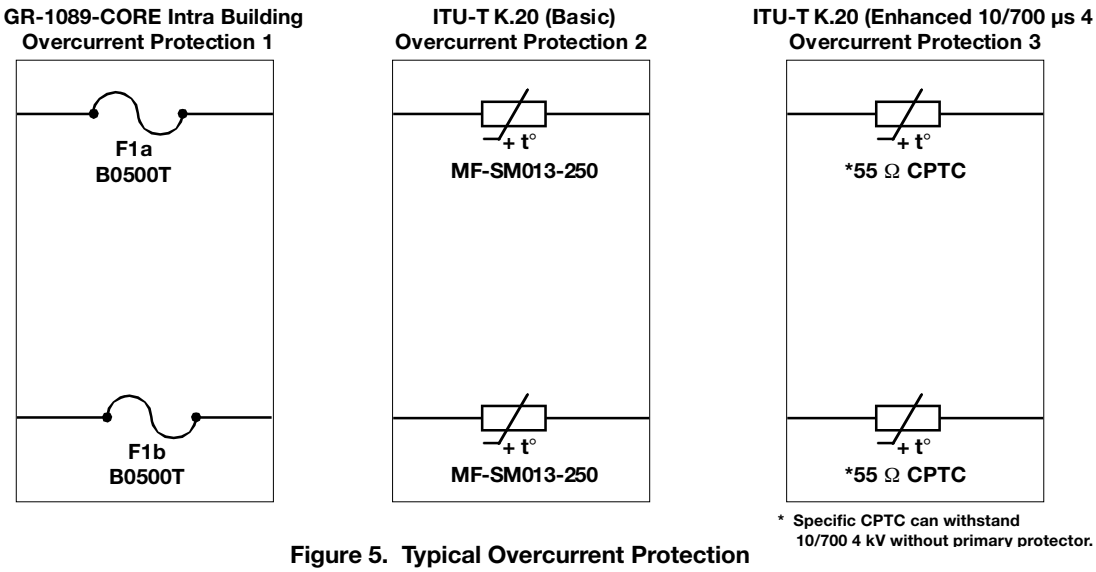

Figure 5. Typical Overcurrent Protection

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