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

Rating		Symbol	Value	Unit
Repetitive peak off-state voltage	‘4070J3BJ	V_{DRM}	±58	V
	‘4080J3BJ		±65	
	‘4095J3BJ		±75	
	‘4115J3BJ		±90	
	‘4125J3BJ		±100	
	‘4145J3BJ		±120	
	‘4165J3BJ		±135	
	‘4180J3BJ		±145	
	‘4200J3BJ		±155	
	‘4219J3BJ		±180	
	‘4250J3BJ		±190	
	‘4290J3BJ		±220	
	‘4350J3BJ		±275	
	‘4395J3BJ		±320	
Non-repetitive peak impulse current (see Notes 1 and 2)		I_{PPSM}		A
2/10 µs (GR-1089-CORE, 2/10 µs voltage wave shape)			±1000	
8/20 µs (IEC 61000-4-5, combination wave generator, 1.2/50 µsvoltage wave shape)			±800	
10/160 µs (TIA-968-A, 10/160 µs voltage wave shape)			±400	
4/250 µs (ITU-T K.20/21, 10/700 µs voltage waveshape, simultaneous)			±370	
5/310 µs (ITU-T K.20/21, 10/700 µs voltage wave shape, single)			±350	
5/320 µs (TIA-968-A, 9/720 µs voltage waveshape, single)			±350	
10/560 µs (TIA-968-A, 10/560 µs voltage wave shape)			±250	
10/1000 µs (GR-1089-CORE, 10/1000 µs voltage wave shape)			±200	
Non-repetitive peak on-state current (see Notes 1 and 2)				
20 ms, 50 Hz (full sine wave)		I_{TSM}	50	A
Initial rate of rise of on-state current. Linear current ramp. Maximum ramp value < 50 A		di_T/dt	800	A/µs
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.
2. These non-repetitive rated currents are peak values of either polarity. The surge may be repeated after the device returns to its initial conditions.

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			±5	µA
			T_A = 85 °C			±10	
$V_{(BO)}$	AC Breakover voltage	dv/dt = ±250 V/ms, R_{SOURCE} = 300 Ω	‘4070J3BJ			±70	V
			‘4080J3BJ			±80	
			‘4095J3BJ			±95	
			‘4115J3BJ			±115	
			‘4125J3BJ			±125	
			‘4145J3BJ			±145	
			‘4165J3BJ			±165	
			‘4180J3BJ			±180	
			‘4200J3BJ			±200	
			‘4219J3BJ			±219	
			‘4250J3BJ			±250	
			‘4290J3BJ			±290	
			‘4350J3BJ			±350	
			‘4395J3BJ			±395	

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

Parameter		Test Conditions		Min	Typ	Max	Unit
$V_{(BO)}$	Ramp breakover voltage	dv/dt ≤ ±1000 V/µs, Linear voltage ramp, Maximum ramp value = ±500 V, di/dt = ±20 A/µs, Linear current ramp, Maximum ramp value = ±10 A	‘4070J3BJ			±77	V
			‘4080J3BJ			±88	
			‘4095J3BJ			±104	
			‘4115J3BJ			±125	
			‘4125J3BJ			±135	
			‘4145J3BJ			±156	
			‘4165J3BJ			±177	
			‘4180J3BJ			±192	
			‘4200J3BJ			±212	
			‘4219J3BJ			±231	
			‘4250J3BJ			±263	
			‘4290J3BJ			±303	
			‘4350J3BJ			±364	
			‘4395J3BJ			±409	
$I_{(BO)}$	Breakover current	dv/dt = ±250 V/ms, R_{SOURCE} = 300 Ω	‘4070J3BJ thru ‘4115J3BJ			±900	mA
			‘4125J3BJ thru ‘4219J3BJ			±800	
			‘4250J3BJ thru ‘4395J3BJ			±600	
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
I_D	Off-state current	V_D = ±50 V	T_A = 85 °C			±10	µA
C_O	Off-state capacitance	f = 1 MHz, V_d = 1 V rms, V_D = 0	‘4070J3BJ thru ‘4115J3BJ		195	235	pF
			‘4125J3BJ thru ‘4219J3BJ		120	145	
			‘4250J3BJ thru ‘4395J3BJ		105	125	
		f = 1 MHz, V_d = 1 V rms, V_D = -1 V	‘4070J3BJ thru ‘4115J3BJ		180	215	
			‘4125J3BJ thru ‘4219J3BJ		110	132	
			‘4250J3BJ thru ‘4395J3BJ		95	115	
		f = 1 MHz, V_d = 1 V rms, V_D = -2 V	‘4070J3BJ thru ‘4115J3BJ		165	200	
			‘4125J3BJ thru ‘4219J3BJ		100	120	
			‘4250J3BJ thru ‘4395J3BJ		90	105	
		f = 1 MHz, V_d = 1 V rms, V_D = -50 V	‘4070J3BJ thru ‘4115J3BJ		85	100	
			‘4125J3BJ thru ‘4219J3BJ		50	60	
			‘4250J3BJ thru ‘4395J3BJ		42	50	
		f = 1 MHz, V_d = 1 V rms, V_D = -100 V (see Note 3)	‘4125J3BJ thru ‘4219J3BJ		40	50	
			‘4250J3BJ thru ‘4395J3BJ		35	40	

NOTE: 3. To avoid possible clipping, the TISP4125J3BJ is tested with V_D = -98 V.

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 4)			90	°C/W

NOTE: 4. EIA/JESD51-2 environment and PCB has standard footprint dimensions connected with 5 A rated printed wiring track widths.

Parameter Measurement Information

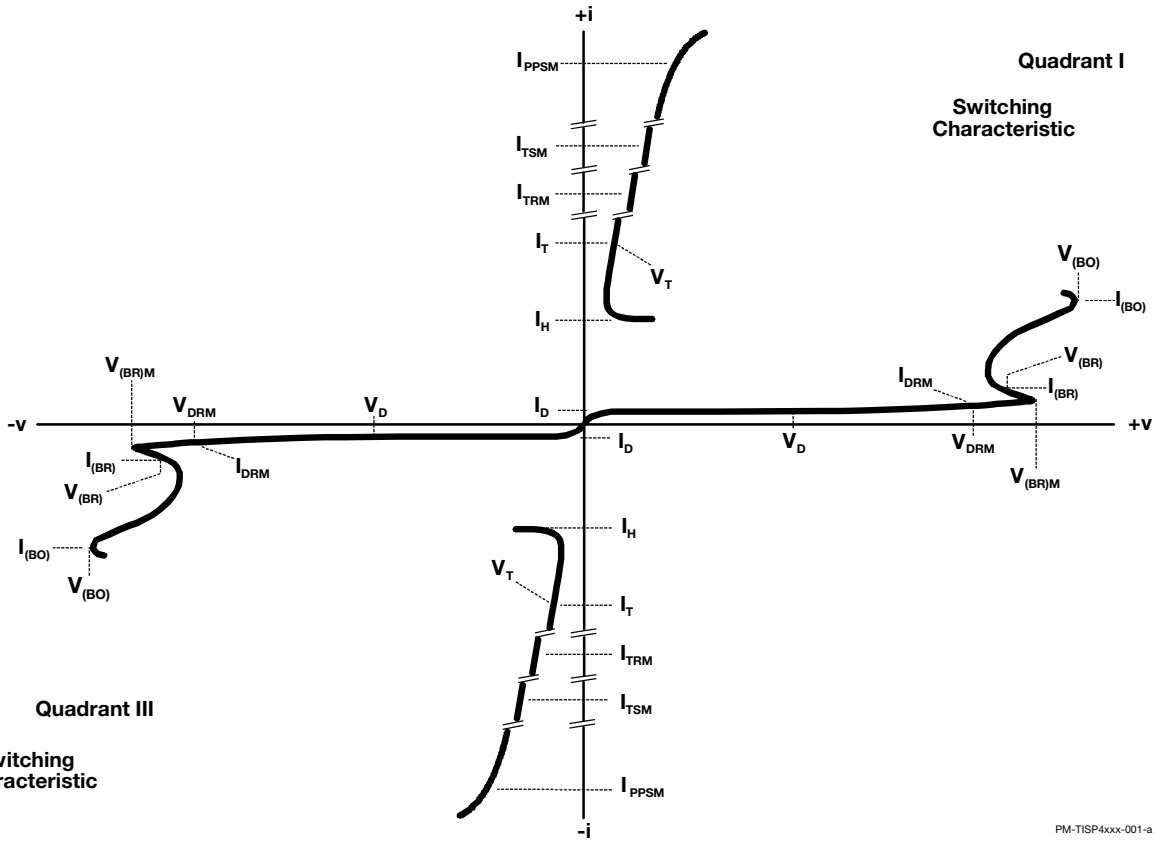

Figure 1. Voltage-Current Characteristic for T and R Terminals
All Measurements are Referenced to the R Terminal

Typical Characteristics

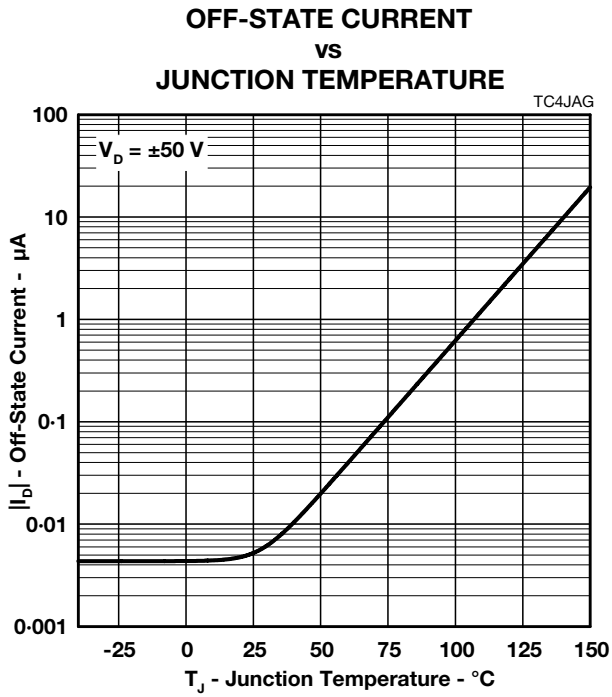

Figure 2.

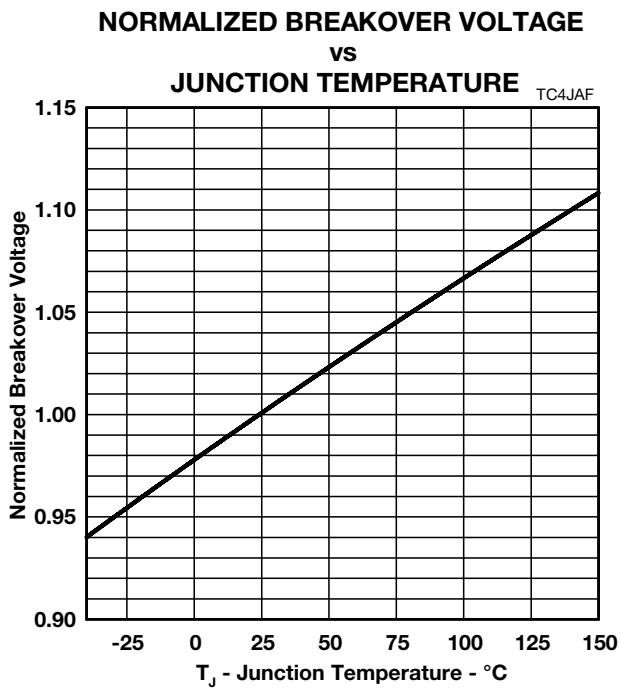

Figure 3.

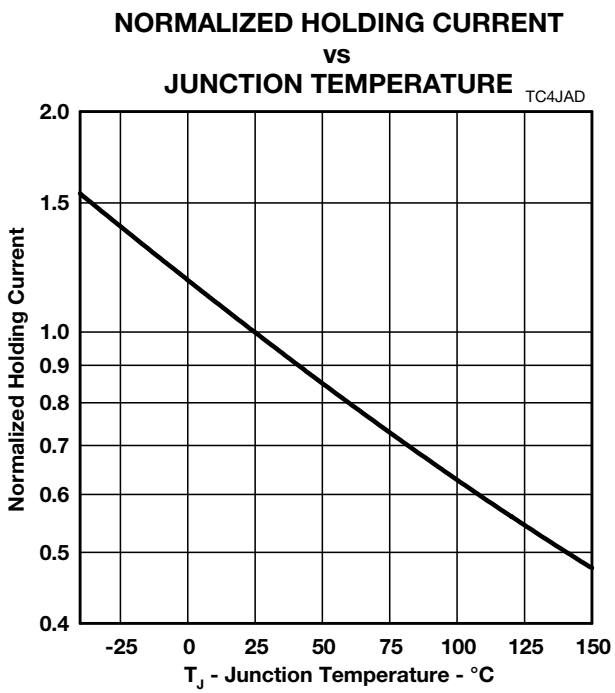

Figure 4.

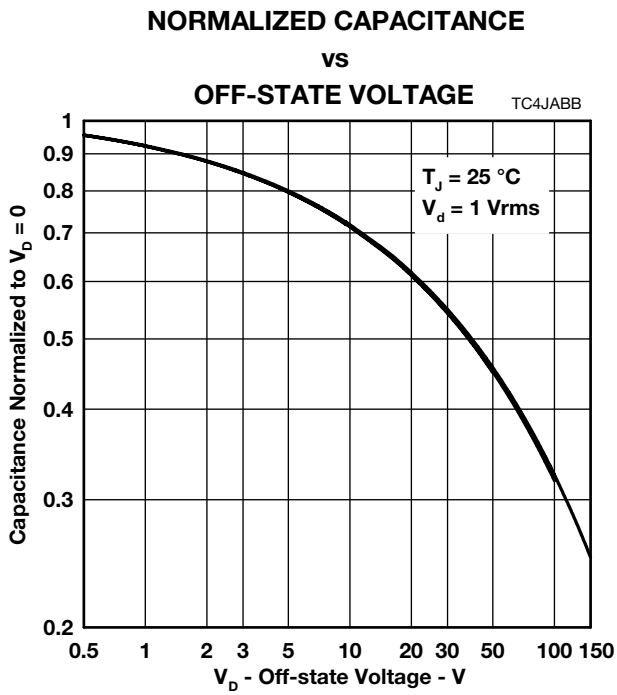

Figure 5.

Rating and Thermal Characteristics

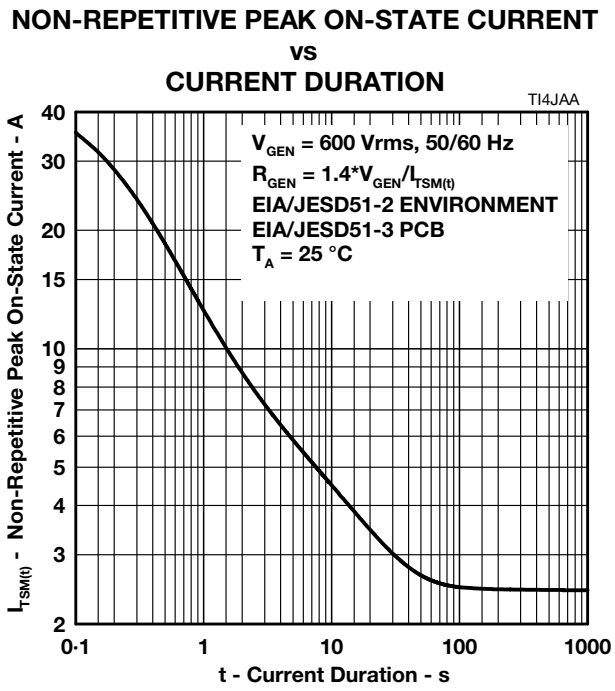

Figure 6.

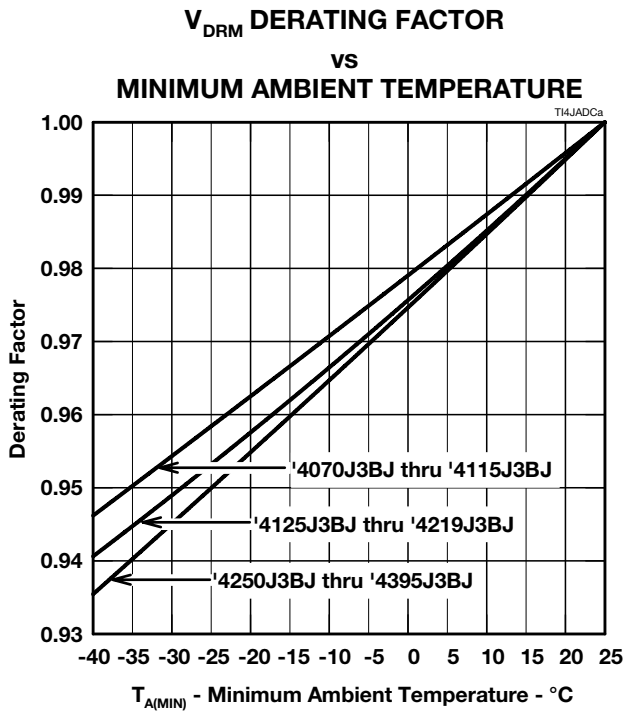

Figure 7.

Applications Information

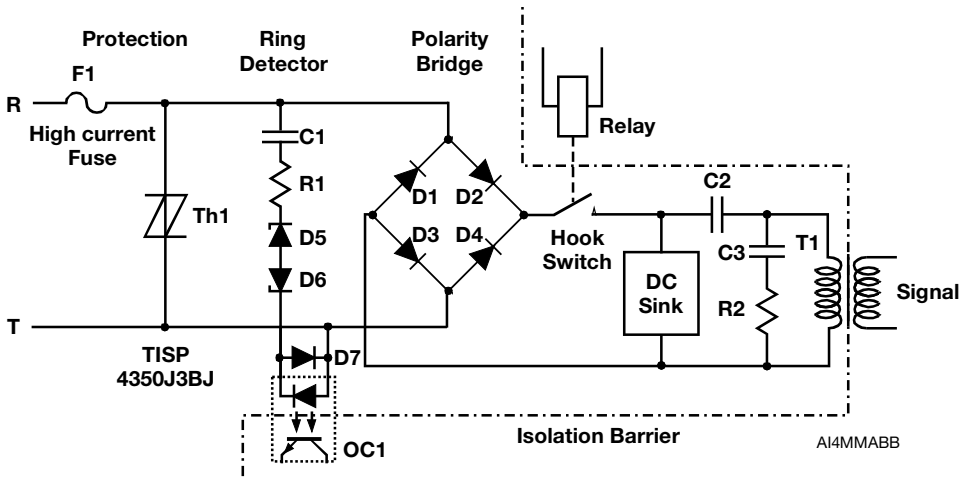

Figure 8. Typical Application Circuit

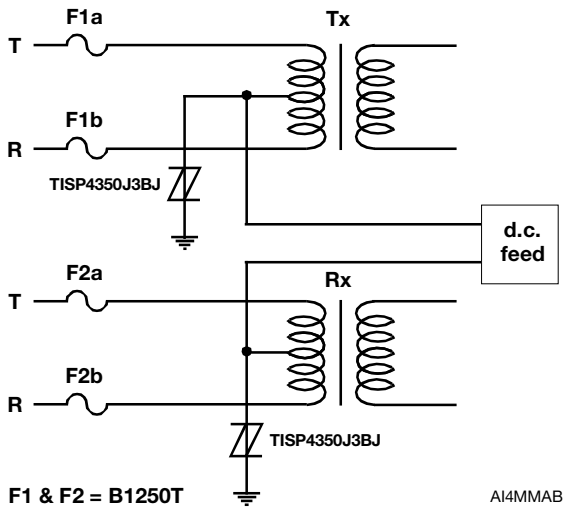

Figure 9. Typical Application Circuit

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