



TISP4070H3BJ THRU TISP4115H3BJ,
TISP4125H3BJ THRU TISP4220H3BJ,
TISP4240H3BJ THRU TISP4400H3BJ

BIDIRECTIONAL THYRISTOR OVERVOLTAGE PROTECTORS

TISP4xxxH3BJ Overvoltage Protector Series

Summary Electrical Characteristics

Part #	V _{DRM} V	V _(BO) V	V _T @ I _T V	I _{DRM} μA	I _(BO) mA	I _T A	I _H mA	C _o @ -2 V pF	Functionally Replaces
TISP4070H3	58	70	3	5	600	5	150	120	P0640SC†
TISP4080H3	65	80	3	5	600	5	150	120	P0720SC†
TISP4095H3	75	95	3	5	600	5	150	120	P0900SC†
TISP4115H3	90	115	3	5	600	5	150	120	P1100SC†
TISP4125H3	100	125	3	5	600	5	150	65	
TISP4145H3	120	145	3	5	600	5	150	65	P1300SC†
TISP4165H3	135	165	3	5	600	5	150	65	
TISP4180H3	145	180	3	5	600	5	150	65	P1500SC
TISP4200H3	155	200	3	5	600	5	150	65	
TISP4220H3	160	220	3	5	600	5	150	65	P1800SC
TISP4240H3	180	240	3	5	600	5	150	55	
TISP4250H3	190	250	3	5	600	5	150	55	P2300SC†
TISP4265H3	200	265	3	5	600	5	150	55	
TISP4290H3	220	290	3	5	600	5	150	55	P2600SC†
TISP4300H3	230	300	3	5	600	5	150	55	
TISP4350H3	275	350	3	5	600	5	150	55	P3100SC
TISP4395H3	320	395	3	5	600	5	150	55	P3500SC
TISP4400H3	300	400	3	5	600	5	150	55	

† Bourns part has an improved protection voltage

Summary Current Ratings

Parameter	I _{TSP} A						I _{TSM} A	di/dt A/μs
	2/10	1.2/50, 8/20	10/160	5/320	10/560	10/1000	1 cycle 60 Hz	2/10 Wavefront
Value	500	300	250	200	160	100	60	400



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ITU-T K.20/21 Rating 8 kV 10/700, 200 A 5/310

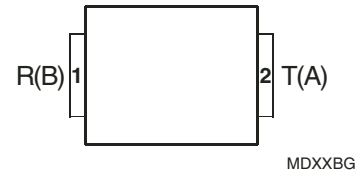
Ion-Implanted Breakdown Region
Precise and Stable Voltage
Low Voltage Overshoot under Surge

Device	V _{DRM} V	V _(BO) V
'4070	58	70
'4080	65	80
'4095	75	95
'4115	90	115
'4125	100	125
'4145	120	145
'4165	135	165
'4180	145	180
'4200	155	200
'4220	160	220
'4240	180	240
'4250	190	250
'4265	200	265
'4290	220	290
'4300	230	300
'4350	275	350
'4395	320	395
'4400	300	400

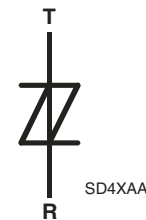
Low Differential Capacitance67 pF max.

..... UL Recognized Component

SMBJ Package (Top View)



Device Symbol



Terminals T and R correspond to the alternative line designators of A and B

Rated for International Surge Wave Shapes

Waveshape	Standard	I _{TSP} A
2/10 μs	GR-1089-CORE	500
8/20 μs	IEC 61000-4-5	300
10/160 μs	FCC Part 68	250
10/700 μs	ITU-T K.20/21	200
10/560 μs	FCC Part 68	160
10/1000 μs	GR-1089-CORE	100

Description

These devices are designed to limit overvoltages on the telephone line. Overvoltages are normally caused by a.c. power system or lightning flash disturbances which are induced or conducted on to the telephone line. A single device provides 2-point protection and is typically used for the protection of 2-wire telecommunication equipment (e.g. between the Ring and Tip wires for telephones and modems). Combinations of devices can be used for multi-point protection (e.g. 3-point protection between Ring, Tip and Ground).

The protector consists of a symmetrical voltage-triggered bidirectional thyristor. Overvoltages are initially clipped by breakdown clamping until the voltage rises to the breakover level, which causes the device to crowbar into a low-voltage on state. This low-voltage on state causes the current resulting from the overvoltage to be safely diverted through the device. The high crowbar holding current helps prevent d.c. latchup as the diverted current subsides.

This TISP4xxxH3BJ range consists of eighteen voltage variants to meet various maximum system voltage levels (58 V to 320 V). They are guaranteed to voltage limit and withstand the listed international lightning surges in both polarities. These high (H) current protection devices are in a plastic package SMBJ (JEDEC DO-214AA with J-bend leads) and supplied in embossed carrier reel pack. For alternative voltage and holding current values, consult the factory. For lower rated impulse currents in the SMB package, the 50 A 10/1000 TISP4xxxM3BJ series is available.

How To Order

Device	Package	Carrier	Order As
TISP4xxxH3BJ	BJ (J-Bend DO-214AA/SMB)	Embossed Tape Reeled	TISP4xxxH3BJR-S
		Bulk Pack	TISP4xxxH3BJ-S

Insert xxx value corresponding to protection voltages of 070, 080, 095, 115 etc.

TISP4xxxH3BJ Overvoltage Protector Series

Electrical Characteristics, $T_A = 25\text{ }^\circ\text{C}$ (Unless Otherwise Noted) (continued)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
C_{off} Off-state capacitance	$f = 100\text{ kHz}, V_d = 1\text{ V rms}, V_D = 0,$	'4070 thru '4115	145	170	pF
		'4125 thru '4220	80	90	
		'4240 thru '4400	70	84	
	$f = 100\text{ kHz}, V_d = 1\text{ V rms}, V_D = -1\text{ V}$	'4070 thru '4115	130	150	
		'4125 thru '4220	71	79	
		'4240 thru '4400	60	67	
	$f = 100\text{ kHz}, V_d = 1\text{ V rms}, V_D = -2\text{ V}$	'4070 thru '4115	120	140	
		'4125 thru '4220	65	74	
		'4240 thru '4400	55	62	
	$f = 100\text{ kHz}, V_d = 1\text{ V rms}, V_D = -50\text{ V}$	'4070 thru '4115	62	73	
		'4125 thru '4220	30	35	
		'4240 thru '4400	24	28	
$f = 100\text{ kHz}, V_d = 1\text{ V rms}, V_D = -100\text{ V}$ (see Note 6)	'4125 thru '4220	28	33		
	'4240 thru '4400	22	26		

NOTE 6: To avoid possible voltage clipping, the '4125 is tested with $V_D = -98\text{ V}$.

Thermal Characteristics

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$R_{\theta JA}$ Junction to free air thermal resistance	EIA/JESD51-3 PCB, $I_T = I_{TSM(1000)},$ $T_A = 25\text{ }^\circ\text{C}$, (see Note 7)			113	$^\circ\text{C/W}$
	265 mm x 210 mm populated line card, 4-layer PCB, $I_T = I_{TSM(1000)}, T_A = 25\text{ }^\circ\text{C}$		50		

NOTE 7: EIA/JESD51-2 environment and PCB has standard footprint dimensions connected with 5 A rated printed wiring track widths.