SELV TELECOMMUNICATION LINE OVERVOLTAGE PROTECTION

- **Digital Line Protection**
  - **— ISDN**
  - **— xDSL**
- **Safety Extra Low Voltage, SELV, values**

DEVICE	V_{DRM} V	$V_{(BO)}$ V
‘4030	± 15	± 30
‘4040	± 25	± 40

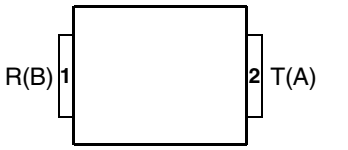
- **High Current “H” Series for GR-1089-CORE**

WAVE SHAPE	STANDARD	I_{TSP} A
10/1000 µs	GR-1089-CORE	100

- **100 A to 75 A Functional Replacements for**

DEVICE TYPE	FUNCTIONAL REPLACEMENT
P0300SC P0300SB	TISP4040H1BJ

SMBJ PACKAGE
(TOP VIEW)



MDXXBG

device symbol

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

description

These devices are designed to limit overvoltages on digital lines. 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 transformer windings and low voltage electronics.

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 device switches off when the diverted current subsides falls below the holding current value.

ADVANCE INFORMATION

absolute maximum ratings, T_A = 25 °C (unless otherwise noted)

RATING		SYMBOL	VALUE	UNIT
Repetitive peak off-state voltage (T_J = 25 °C)	'4030H1BJ	V_{DRM}	±15	V
	'4040H1BJ		± 25	
Non-repetitive peak on-state pulse current (see Notes 1 and 2)		I_{TSP}		A
10/1000 µs (Telcordia GR-1089-CORE, 10/1000 µs voltage wave shape)			± 100	
Non-repetitive peak on-state current (see Notes 1 and 2),		I_{TSM}		A
0.2 s 50 Hz a.c.			25	
2 s 50 Hz a.c.			12	
Maximum junction temperature		T_{JM}	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. The surge may be repeated after the device returns to its initial conditions.

electrical characteristics for the R and T terminals, T_A = 25 °C

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
I_{DRM}	Repetitive peak off-state current	$V_D = V_{DRM}$				± 10	µA
$V_{(BO)}$	Breakover voltage	dv/dt = ±250 V/ms, R_{SOURCE} = 300 Ω	'4030H1BJ			± 30	V
			'4040H1BJ			± 40	
$I_{(BO)}$	Breakover current	dv/dt = ±250 V/ms, R_{SOURCE} = 300 Ω				± 0.8	A
I_D	Off-state current	V_D = ± 13 V	'4030H1BJ			± 2	µA
		V_D = ± 22 V	'4040H1BJ			± 2	
I_H	Holding current	I_T = ±5 A, di/dt = +/-30 mA/ms	'4030H1BJ		± 0.05		A
			'4040H1BJ		± 0.05		
C_{off}	Off-state capacitance	f = 1 MHz, V_d = 1 Vrms, V_D = 1 V,	'4030H1BJ		95		pF
			'4040H1BJ		95		

thermal characteristics

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JL}$	Junction to leads thermal resistance				20	°C/W
$R_{\theta JA}$	Junction to free air thermal resistance				100	°C/W

ADVANCE INFORMATION

PARAMETER MEASUREMENT INFORMATION

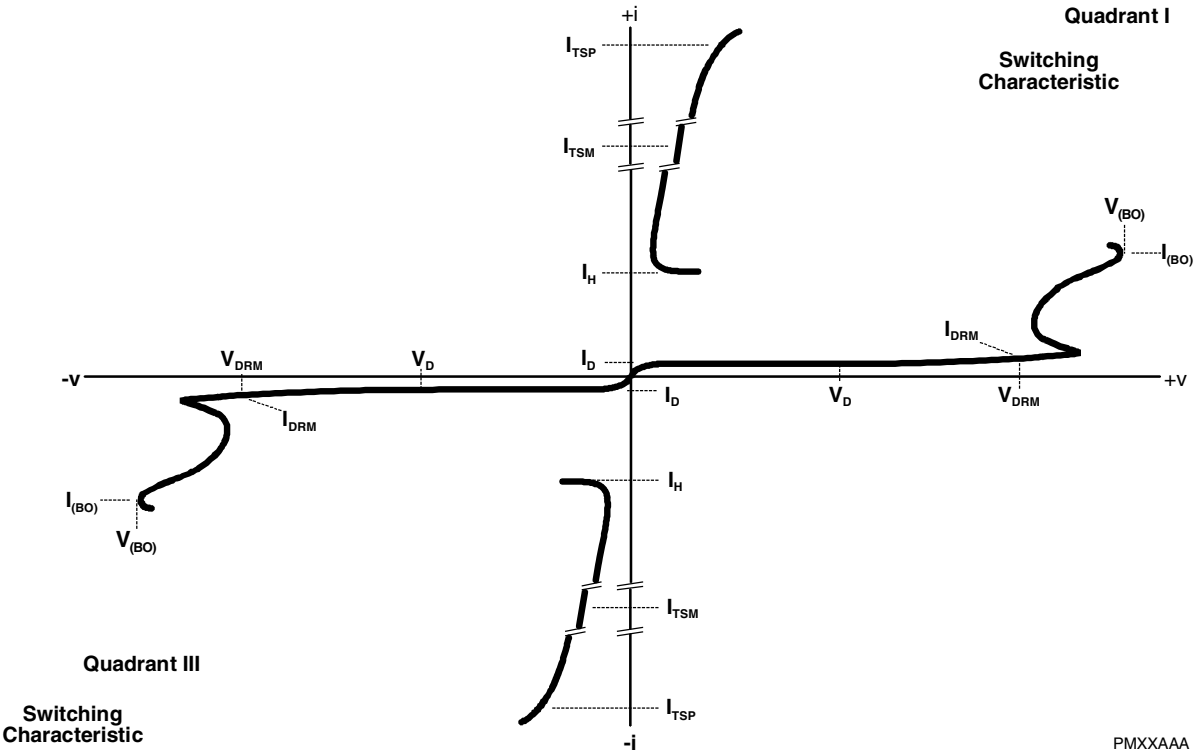


Figure 1. VOLTAGE-CURRENT CHARACTERISTIC FOR TERMINAL PAIR
T and R measurements are referenced to the R terminal

ADVANCE INFORMATION

DEVICE STATUS

samples

The current samples of the TISP4030H1BJ and TISP4040H1BJ are experimental units and have only been verified for a surge rating of ±100 A, 10/1000. These samples are suitable for circuit evaluation by customers and should not be used for long term reliability testing. It is considered that the small signal electrical circuit performance of these samples is reasonably representative of a final production design.

It is intended that the final production parts of the TISP4030H1BJ and TISP4040H1BJ will use a modified chip design.

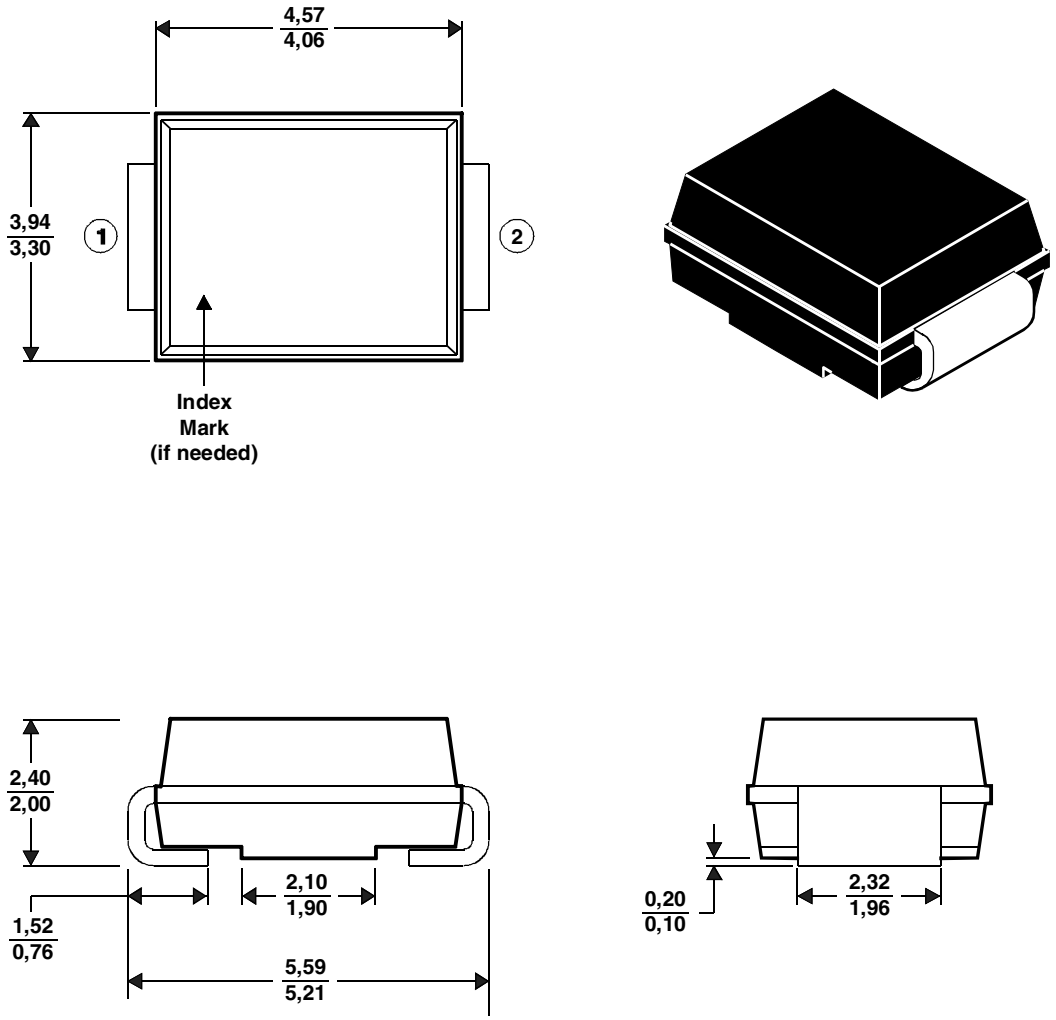
MECHANICAL DATA

SMBJ (DO-214AA)

plastic surface mount diode package

This surface mount package consists of a circuit mounted on a lead frame and encapsulated within a plastic compound. The compound will withstand soldering temperature with no deformation, and circuit performance characteristics will remain stable when operated in high humidity conditions. Leads require no additional cleaning or processing when used in soldered assembly.

SMB



ALL LINEAR DIMENSIONS IN MILLIMETERS

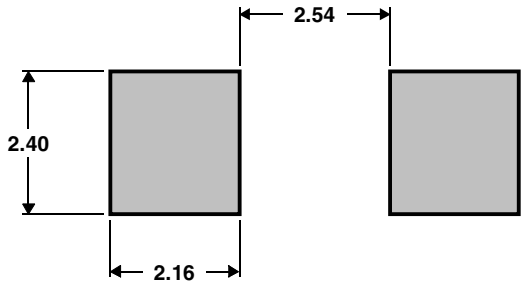
MDXXBHA

ADVANCE INFORMATION

MECHANICAL DATA

recommended printed wiring footprint.

SMB Pad Size



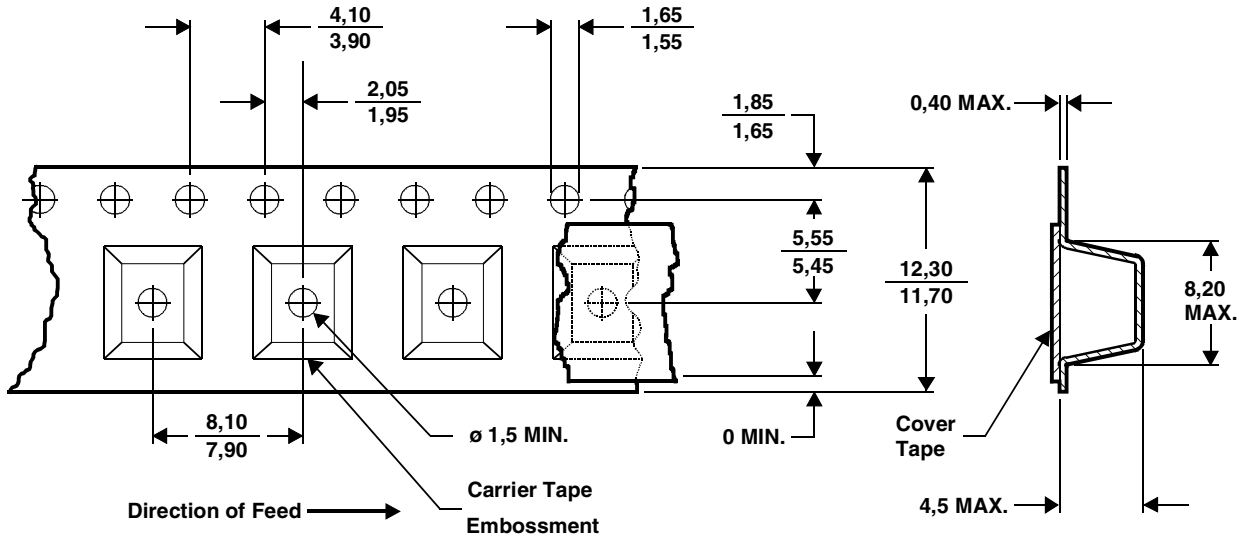
ALL LINEAR DIMENSIONS IN MILLIMETERS

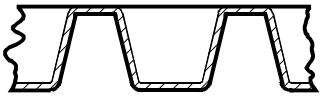
MDXXBI

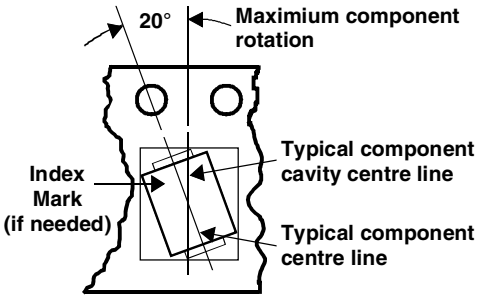
MECHANICAL DATA

tape dimensions

SMB Package Single-Sprocket Tape







ALL LINEAR DIMENSIONS IN MILLIMETERS

NOTES: A. The clearance between the component and the cavity must be within 0,05 mm MIN. to 0,65 mm MAX. so that the component cannot rotate more than 20° within the determined cavity. MDXXBJ

B. Taped devices are supplied on a reel of the following dimensions:-

Reel diameter:	330 ±3,0 mm
Reel hub diameter	75 mm MIN.
Reel axial hole:	13,0 ±0,5 mm

C. 3000 devices are on a reel.

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