

Customized TISP® Pairs For Solid State Relay (LCAS) Protection



Our new TISP4125x3BJ & TISP4219x3BJ are coordinated pairs of protectors designed to protect Solid State Relays. Solid State Relays are used in line card applications where conventional electro-mechanical relays are not suitable, and may also be referred to as LCAS (Line Card Access Switches). LCAS have more precise protection needs than electro-mechanical relays, requiring reduced voltage limiting to protect between switch terminals and from the terminals to ground.

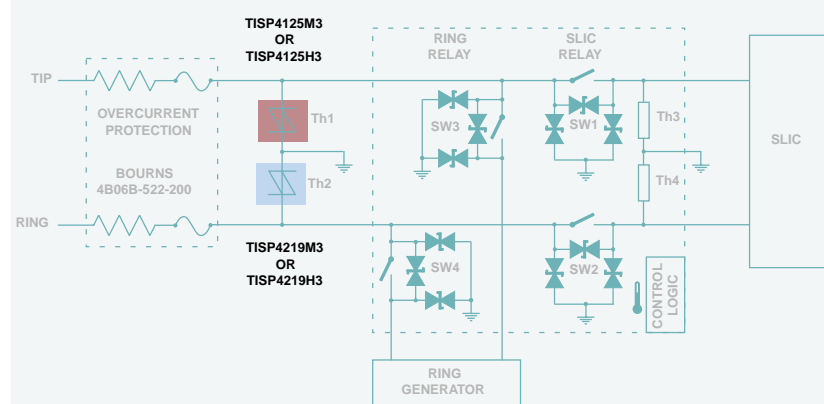
These surface mount SMB packaged devices are designed to be used as a protector pair, protecting the line side of the LCAS for battery backed, ground backed and balanced ringing configurations. These two separate devices need to have different protection voltages to allow the system and ringing signal to pass below the protection level, while minimizing stress on the SLIC.

At room temperature, a typical LCAS has a voltage rating of 320 V between the switch terminals, and from the switch terminals to the logic control circuitry. The TISP4219x3BJ protects to a maximum of 219 V from the Ring line to ground, and the TISP4125x3BJ protects to a maximum of 125 V on the Tip line while still allowing the battery and ringing signals to pass. During normal system operation, this combination of TISP® devices allows system levels of ±100 V on the Tip line and ±180 V on the Ring line to pass without clipping.

Features

- Designed to Protect Solid State Relays (LCAS)
 - e.g. Agere (Lucent) or Clare '7581, '7582, '7583
 - Intersil™ ISL5571A
- Customized voltages for LCAS protection
 - Ground-backed ringing (87 V_{RMS})
 - Battery-backed ringing (101 V_{RMS})
- 50 A & 100 A 10/1000 surge ratings available
- Detailed applications information included in the data sheet

Typical Application Circuit



These devices are available with either 50 A "M" rated or 100 A "H" rated 10/1000 surge guarantees. The TISP4xxxH3BJ devices are intended to protect applications with minimal series co-ordination resistance, while the TISP4xxxM3BJ are intended for applications where additional co-ordination resistance such as a Multifuse, PTC or Line Feed Resistor is used.

If you are interested in providing optimum protection for your LCAS, we invite you to request your free datasheet and coordinated pair of samples with the prepaid card enclosed.

Device	Standoff Voltage V _{DRM} (V)	Protection Voltage V _{BO} (V)	10/1000 Surge Rating (A)	LCAS Terminal
TISP4125M3BJR	100	125	50	TIP
TISP4125H3BJR			100	
TISP4219M3BJR	180	219	50	RING
TISP4219H3BJR			100	

15 V, 30 V & 40 V TISP® To Protect High-frequency Digital Telecom Lines

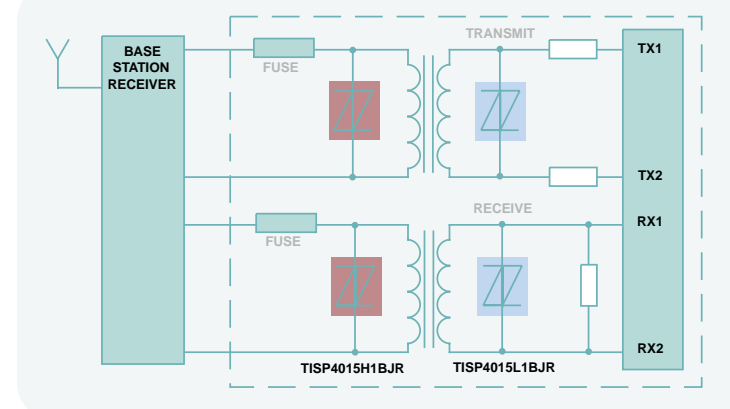


We are proud to announce six low-voltage TISP® telecom protectors, developed using our new low-voltage Thyristor process, which allows us to produce devices with lower & more precisely controlled voltages than ever before. Each device provides 2-point protection and is typically used for the protection of transformer windings and low-voltage electronics.

Device	V _{DRM} (V)	V _{BO} (V)	I _{TISP} 10/1000 (A)	C _{off} (pF)
TISP4015L1BJR	8	15	30	23
TISP4030L1BJR	15	30	30	22
TISP4040L1BJR	25	40	30	18
TISP4015H1BJR	8	15	100	65
TISP4030H1BJR	15	30	100	50
TISP4040H1BJR	25	40	100	47

This new family of devices offers working voltages (V_{DRM}) as low as 8 V, with a narrow 15 V protection voltage (V_{BO}), making the TISP4015L1BJR and TISP4015H1BJR ideally suited to T1/E1 applications. The family also offers higher working/protection voltage windows of 15/30 V and 25/40 V for higher voltage applications. Two different lightning surge ratings are available, the TISP40xxH1BJR series are rated at 100 A 10/1000, and the TISP40xxL1BJR offer a 30 A 10/1000 guarantee. The 100 A TISP40xxH1BJRs are perfect for external building applications which need to meet ITU-T and GR-1089 CORE requirements.

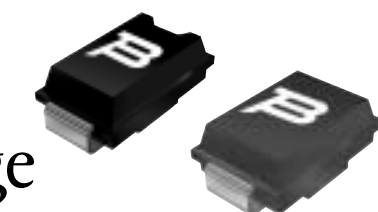
Typical Application Circuit



These devices feature ultra low capacitance that is guaranteed at all anticipated system levels, making them ideal for high data-rate digital applications. They also benefit from symmetrical capacitance between two quadrants of the thyristor structure, ensuring critical line balance on the copper lines. We are currently the only manufacturer to specify both typical and maximum junction capacitance under bias and no-bias conditions making circuit design and system performance predictable.

We invite you to request your free samples and datasheets with the prepaid card enclosed.

Single Bidirectional TISP® Now Available In 25% Smaller Package

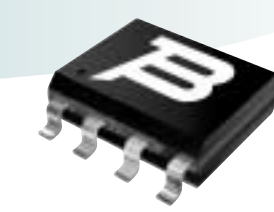


We have extended our single bidirectional range even further by adding the SMA (DO-214AC) package option, offering designers a potential 25% space saving over the existing SMB (DO-214AA) package. The new SMA packaged devices use the "AJR" delivery option suffix. We invite you to request your free sample and datasheets with the prepaid card enclosed.

Features

- Space saving - 25% smaller than existing SMB package
- 18 protection voltage variants rated for 50 A 10/1000
- 15 protection voltage variants rated for 30 A 10/1000

Programmable Ringing SLIC Protection to -170 V



As ringing SLIC technology progresses, higher ringing voltages need to be generated to allow the SLIC to drive longer lines. The TISP61089B and TISPPBL3 have been developed to protect SLICs that can generate ringing voltages of up to 85 V_{RMS}, requiring a maximum supply voltage of -170 V.

The protector's gate terminal is typically connected to the negative supply rail of the SLIC. This references the protection voltage to the negative supply voltage. The protector tracks the negative supply voltage to minimize overvoltage stress on the SLIC.

Positive overvoltages are clipped by diode forward conduction. Negative overvoltages are initially clipped close to the SLIC negative supply rail value. If sufficient current is available from the overvoltage, then the protection will crowbar into a low-voltage on-state condition. As the current subsides, the high crowbar holding current prevents DC latch up.

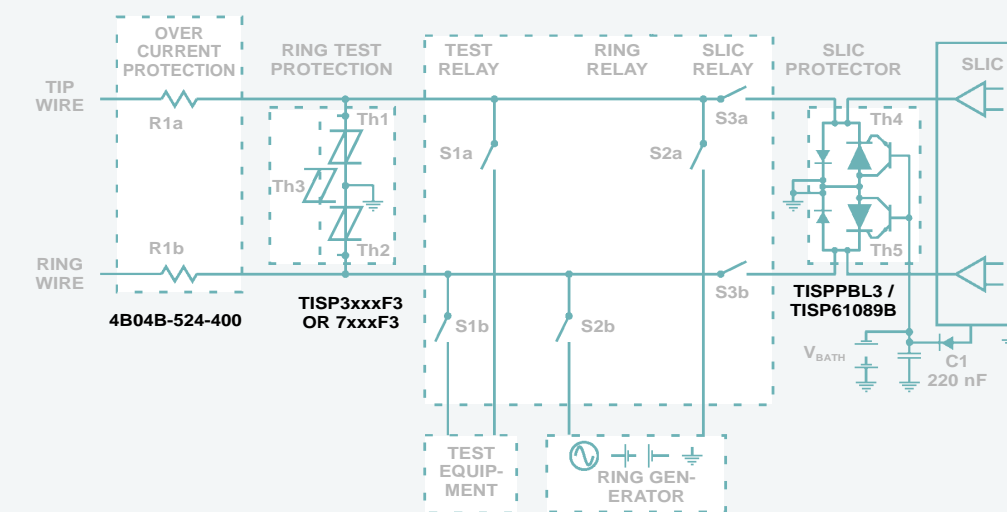
If you are using a high-voltage ringing SLIC such as the Legerity™ 79R241 or the Infineon PEB series, the TISP61089B is the ideal overvoltage protection solution. The TISPPBL3 is matched to the requirements of the Ericsson Microelectronics PBL series SLICs.

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Features

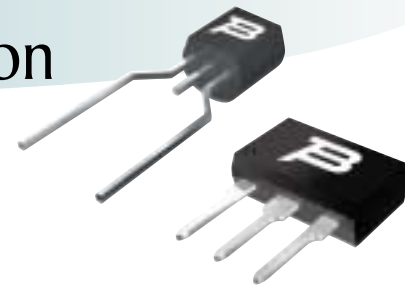
- Programmable to -170 V for high-voltage ringing SLICs
- Low voltage overshoot under surge for minimum SLIC stress
- Specified to allow compliance with Telcordia GR1089-CORE

Typical Application



Manufacturer	SLIC		RECOMMENDED CIRCUIT PROTECTION	
	Series	Overvoltage	Overcurrent	
Ericsson	PBL 3 Series	TISPPBL3	4B04B-524-400	
Legerity™	ISLIC™ 79R241, 79R101, 79R100	TISP61089B	4B04B-524-400	
Infineon	SLIC-P PEB 4265			

Insulation Overvoltage Protection with TISP4x00F3LM and TISP3x00F3SL



These devices are designed to limit overvoltages on telecom network connections in powered IT equipment (e.g. Surge Bars). This extends equipment life and allows compliance with UL 1950 / UL 60950 (also known as IEC 60950, EN 60950 and CSA 22.2 No.950).

The '950 family of standards have certain requirements for equipment with incoming lines of telecom network voltage (TNV). Any protector from a TNV conductor to protective ground must have a voltage rating which is at least 1.6 times the equipment rated supply voltage. The intent is to prevent the possibility of the a.c. mains supply voltage from feeding into the telecommunication network and creating a safety hazard. International and European equipment usually have a maximum rated voltage of 230, 240 or 250 Vrms. Multiplying 250 V by 1.6 gives a protector V_{DRM} of 400 V. The TISP4600F3 will protect a single line to ground, while the dual-configuration TISP3600F3 allows protection of two lines to ground.

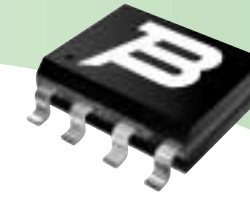
Systems not connected directly to ground (or left floating) are vulnerable to transients, resulting in high-voltages and subsequent insulation breakdown. The TISP4700F3 and TISP3700F3 are designed to limit the insulation stress by at least 700 V. The TISP3700F3 connected across its T and R terminals (ground left unconnected) increases the insulation voltage to 1400 V. Similarly, 2 x TISP4700F3s connected in series will allow insulation testing of 2000 V (1400 Vrms).

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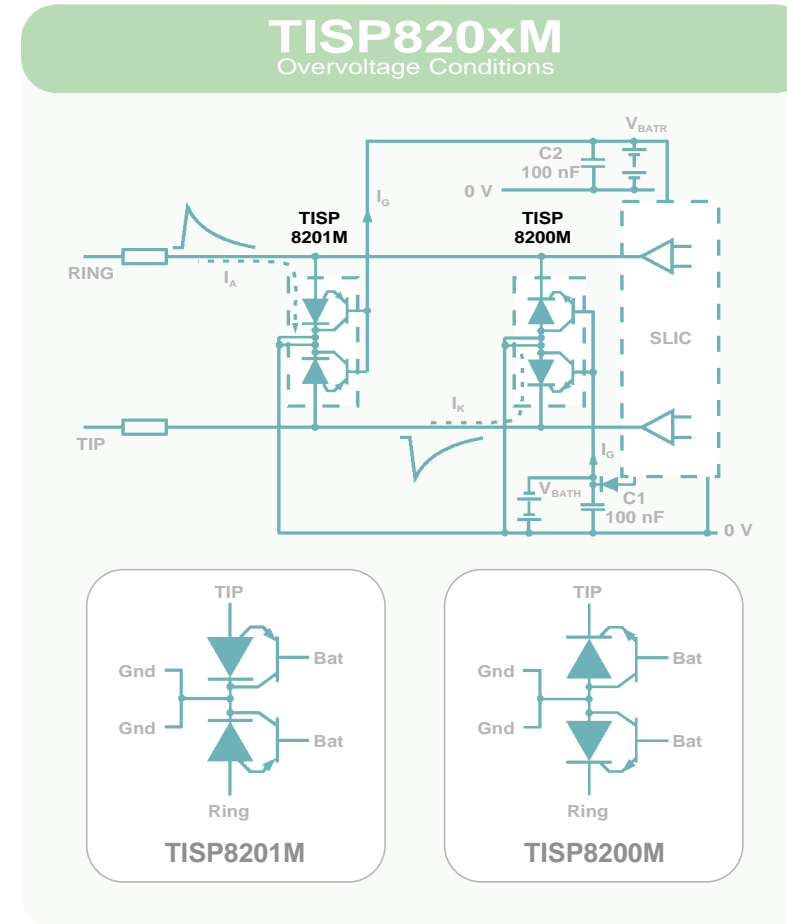
Device	T&G, R&G		T&R		Package/Symbol
	V_{DRM}	$V_{(BO)}$	V_{DRM}	$V_{(BO)}$	
TISP3600F3	420	600	840	1200	
TISP3700F3	500	700	1000	1400	
TISP4600F3			420	600	
TISP4700F3			500	700	



TISP8200M and TISP8201M, ± 90 V Dual-Supply SLIC Protectors



The TISP8200M and TISP8201M are a complementary pair of programmable protectors, designed to protect ringing SLICs with dual-polarity supply rails. Both devices feature two high-gain, robust transistor buffers and reverse polarity blocking thyristor sections. The protection function has been deliberately split into positive and negative devices to minimize voltages under +ve and -ve surges. Both devices are supplied in 8-pin small outline packages.



Bourns Sales Offices/Technical Assistance

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2 TISP4125x3BJ & TISP4219x3BJ
Customized TISP® pairs for Solid State Relay (LCAS) protection

3 TISP40xxLIBJ & HIBJ
15 V, 30 V & 40 V TISP® to protect high-frequency digital telecom lines.

SMALLer package
Single bidirectional TISP® now available in 25% SMALLer package.

4 TISP61089B & TISPPBL3
Programmable Ringing SLIC Protection

5 TISP3x00F3SL & TISP4x00F3LM
Insulation Overvoltage Protection

6 TISP8200M & TISP8201M
Positive and Negative Polarity Dual-Supply SLIC Protection

