

SLIC PROTECTOR



DESCRIPTION

The PSLIC1 is a programmable transient voltage protector, designed to protect Subscriber Line Interface Circuit (SLIC) cards for xDSL communication ports. The device can be set referenced to -VBAT, through the gate to trigger the thyristor on negative transients, while the other two diodes act as clippers for positive overloads in the circuit. PSLIC1 is configured to ensure reliable protection, eliminating the overvoltage transients introduced by the parasitic inductance of the wiring, in particular for very fast transients. The device is available in an SOIC-8 package.

FEATURES

- Dual Programmable Transient Suppressor
- Wide Negative Firing Voltage Range: V_{GKRM} @ -167V Max
- Low Dynamic Switching Voltage: V_{FRM} & $V_{GK(BD)}$
- Low Gate Trigger Current: I_{GT} @ 5mA Max
- Peak Pulse Current: I_{PP} @ 30A for 10/1000 μ s Surge
- ITU-T-K20/21 (IEC 61000-4-2) Air/Contact \pm 30kV
- Holding Current: I_H @ 150mA Min
- RoHS Compliant
- REACH Compliant

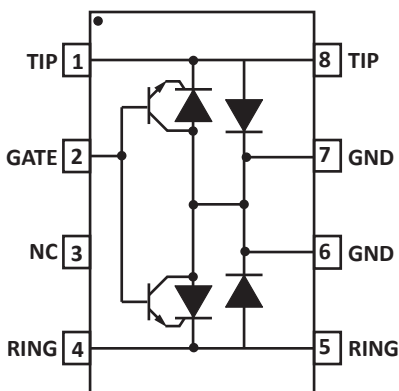
APPLICATIONS

- xDSL Interfaces

MECHANICAL CHARACTERISTICS

- Molded JEDEC SO-8 Package
- Approximate Weight: 70 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 12mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

PIN CONFIGURATION



TYPICAL DEVICE CHARACTERISTICS
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Storage Temperature	T_{STG}	-40 to +150	°C
Junction Temperature	T_J	-40 to +150	°C
Ambient Temperature	T_A	-40 to +150	°C
Non-Repetitive Peak On-State Pulse Current	I_{TSP}	30 @ 10/1000 μ s	A
		40 @ 5/310 μ s	
		100 @ 1.2/50 μ s	
Non-Repetitive Peak Pulse Voltage - 10/700 μ s	V_{PP}	2000	V
Non-Repetitive Surge Peak On-Current (Sinusoidal) 60Hz	I_{TSM}	6.5 @ 0.5s	A
		4.6 @ 1s	
		2.3 @ 5s	
		1.3 @ 30s	
		0.73 @ 900s	
Maximum Voltage - Line/Ground	V_{DRM}	-170	V
Maximum Voltage - Gate/Line	V_{GKRM}	-167	V
Thermal Resistance - Junction to Ambient	$R_{\theta JA}$	150	°C/W

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	MAXIMUM FORWARD VOLTAGE $I_F @ 5A$ $t_w = 200\mu s$ V_F VOLTS	MAXIMUM FORWARD RECOVERY VOLTAGE 2/10 μ s $I_F @ 100A$ RS = 50 Ohms di/dt = 80A/ μ s V_F VOLTS	MAXIMUM OFF-STATE CURRENT $V_{DRM} @ -170V$ $V_{GK} = 0V$ I_{DRM} μA	MAXIMUM BREAKOVER VOLTAGE 2/10 μ s $I_{TM} @ -100A$ RS = 50 Ohms di/dt = 80A/ μ s $V_{GG} = -100V$ V_{BO} VOLTS
PSLIC1	PTR1	3	10	-5	-112

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

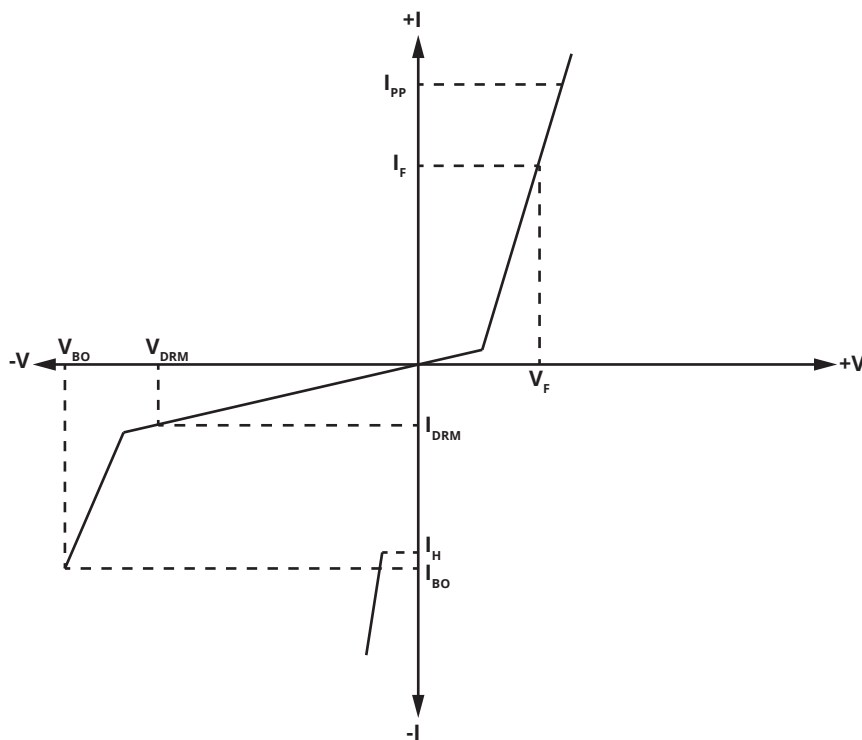
MINIMUM HOLDING CURRENT $I_T = -1A$ di/dt = 1A/ms $V_{GG} = -100V$ I_H mA	MAXIMUM GATE REVERSE CURRENT $V_{GG} = V_{GK} = -167V$ $V_{KA} = 0$ $T_J = 25^\circ C$ I_{GKS} μA	MAXIMUM GATE TRIGGER CURRENT $I_T = -3A$ tp(g) $\geq 20\mu s$ $V_{GG} = -100V$ I_{GT} mA	MAXIMUM GATE TRIGGER VOLTAGE $I_T = -3A$ tp(g) $\geq 20\mu s$ $V_{GG} = -100V$ V_{GT} V	MAXIMUM ANODE-CATHODE OFF-STATE CAPACITANCE f=1MHz, $V_D = 1V$ $I_G = 0A, V_D = -3V$ C_{AK} pF	MAXIMUM ANODE-CATHODE OFF-STATE CAPACITANCE f=1MHz, $V_D = 1V$ $I_G = 0A, V_D = 50V$ C_{AK} pF
-150	-5	5	2.5	70	30

TYPICAL DEVICE CHARACTERISTICS

RECOMMENDED OPERATING CONDITIONS @ 25°C Unless Otherwise Specified

COMPONENT	SYMBOL	VALUE	UNITS
Gate Decoupling Capacitor	C_G	100 Min, 220 Typ.	nF
Minimum Resistor for GR-1089-CORE First-Level Surge	R_S	25	Ω
Minimum Resistor for GR-1089-CORE First-Level & Second-Level Surge Survival		40	
Minimum Resistor for GR-1089-CORE Intra-Building Port Surge Survival		8	
Minimum Resistor for K.20, K.21 & K.45 Coordination with a 400V Primary Protector		10	

FIGURE 1
VI CHARACTERISITC CURVE



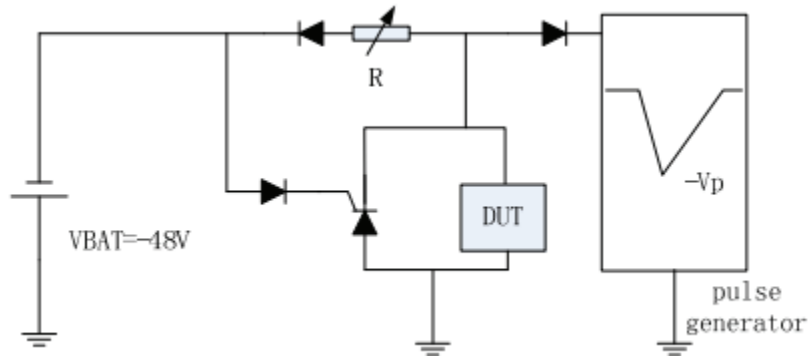
TESTING STANDARDS

TYPE	WAVE SHARP		V_{PP}/I_{PP}
	ITU-T K.20/21 & K.45	Voltage	10/700 μ s
Current		5/310 μ s	40A

1. The PSLC1 is intended to be used with a series combination of a 40 Ohm or higher resistance and a suitable overcurrent protector. Power fault compliance requires the series overcurrent element to open-circuit or become high impedance. For equipment compliant to ITU-T recommendations, K.20 or K.21 or K.45 only, the series resistor value is set by the coordination requirements. For coordination with a 400V limit GDT, a minimum series resistor value of 10 Ohm is recommended.

TYPICAL DEVICE CHARACTERISTICS

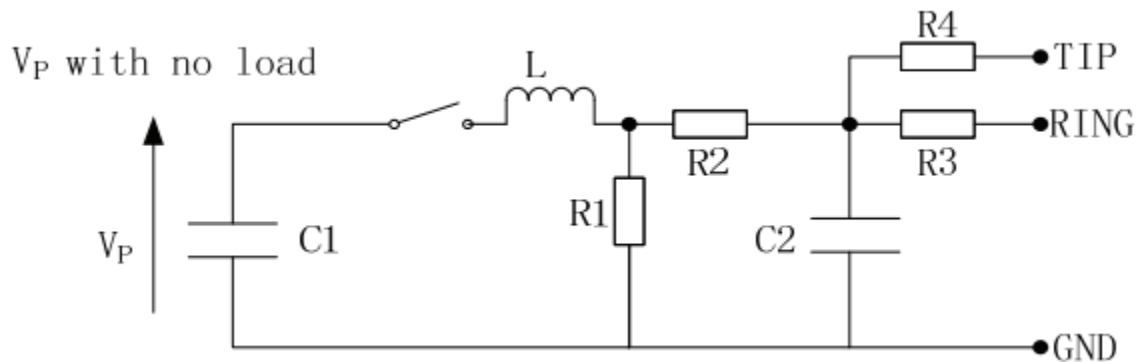
HOLDING CURRENT - TEST CIRCUIT 1



This is a conduction-cutoff test. The test circuit is used to ascertain the size of holding current. Test method:

1. Short out DUT, regulating current in IH range.
2. Triggering DUT with $I_{pp} = 10A, 10/1000\mu s$ surge current.
3. DUT needs to return to the off-state in the maximum 50ms.

V_{FP} AND V_{GDL} - TEST CIRCUIT 2



PULSE μs		V_p V	C1 μF	C2 nF	L μH	R1 Ω	R2 Ω	R3 Ω	R4 Ω	I_{pp} A	R_p Ω
Trise	Tfall										
10	700	1500	20	200	0	50	15	25	25	30	10
1.2	50	1500	1	33	0	76	13	25	25	30	10
2	10	2500	10	0	1.1	1.3	0	3	3	38	62

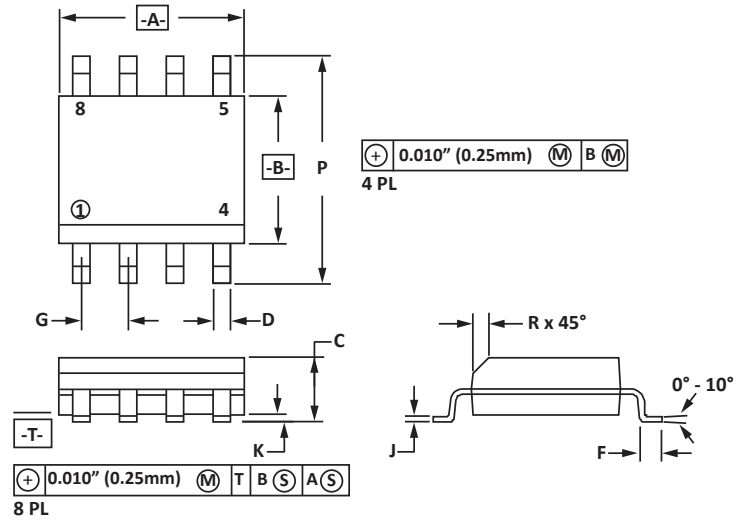
SO-8 PACKAGE INFORMATION

OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.05 BSC	
J	0.18	0.25	0.007	0.009
K	0.10	0.25	0.004	0.008
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

NOTES

- T = Seating plane and datum surface.
- Dimensions "A" and "B" are datum.
- Dimensions "A" and "B" do not include mold protrusion.
- Maximum mold protrusion is 0.015" (0.380mm) per side.
- Dimensioning and tolerances per ANSI Y14.5M, 1982.
- Dimensions are exclusive of mold flash and metal burrs.

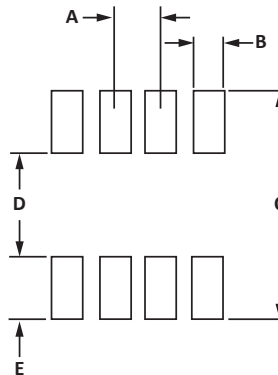


PAD LAYOUT DIMENSIONS

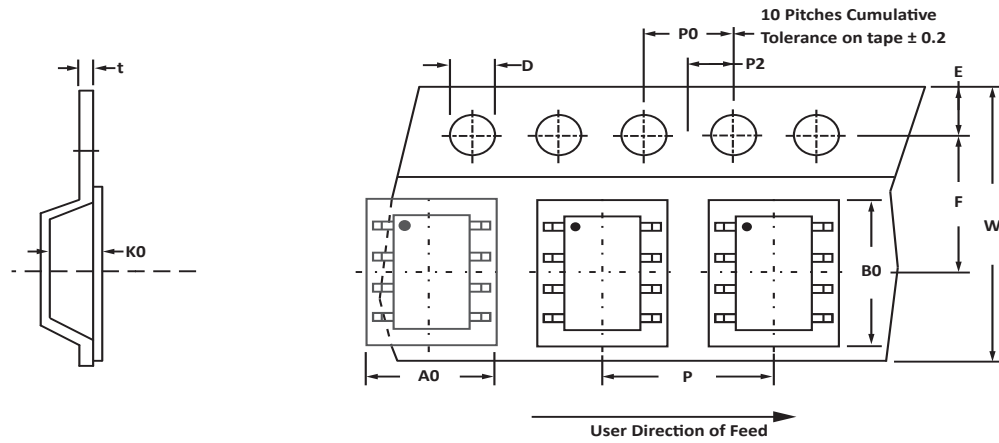
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.14	1.40	0.045	0.055
B	0.64	0.89	0.025	0.035
C	6.22	-	0.245	-
D	3.94	4.17	0.155	0.165
E	1.02	1.27	0.040	0.050

NOTES

- Controlling dimension: inches.



TAPE AND REEL



SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
330mm(13")	12mm	6.60 ± 0.10	5.30 ± 0.10	2.10 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	5.50 ± 0.05	12.00 ± 0.30	4.00 ± 0.12	2.00 ± 0.10	8.00 ± 0.10	0.25

NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Marking on Part - marking code (see page 2), date code, logo and pin one defined by dot on top of package.

ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE
PSLIC1	-LF	-T13	4,000	13"

This device is only available in a Lead-Free configuration.

COMPANY INFORMATION

COMPANY PROFILE

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is an ISO 9001 certified company.

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