

1N5772

Isolated Diode Array with HiRel MQ, MX, MV, and MSP Screening Options

DESCRIPTION

These low capacitance diode arrays are multiple, discrete, isolated junctions fabricated by a planar process and mounted in a 10-PIN package for use as steering diodes protecting up to eight I/O ports from ESD, EFT, or surge by directing them to the positive side of the power supply line and to ground (see figure 1). An external TVS diode may be added between the positive supply line and ground to prevent overvoltage on the supply rail. They may also be used in fast switching core-driver applications. This includes computers and peripheral equipment such as magnetic cores, thin-film memories, plated-wire memories, etc., as well as decoding or encoding applications. These arrays offer many advantages of integrated circuits such as high-density packaging and improved reliability. This is a result of fewer pick and place operations, smaller footprint, smaller weight, and elimination of various discrete packages that may not be as user friendly in PC board mounting.



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IMPORTANT: For the most current data, consult MICROSEMI's website: http://www.microsemi.com

FEATURES

- Hermetic Ceramic Package
- Isolated Diodes To Eliminate Cross-Talk Voltages
- High Breakdown Voltage $V_{BR} > 60$ V at 10 μ A
- Low Leakage I_R< 100nA at 40 V
- Low Capacitance C < 8.0 pF
- Options for screening in accordance with MIL-PRF-19500/474 for JAN, JANTX, JANTXV, and JANS are available by adding MQ, MX, MV, or MSP prefixes respectively to part numbers. For example, designate MX1N5772 for a JANTX screen.

MAXIMUM RATINGS

- Reverse Breakdown Voltage of 60 Vdc (Note 1 & 2)
- Continuous Forward Current of 300 mA dc (Note 1 & 3)
- Peak Surge Current (tp=1/120 s) of 500 mA dc (Note 1)
- 400 mW Power Dissipation per Junction @ 25°C
- 500 mW Power Dissipation per Package @ 25°C (Note 4)
- Operating Junction Temperature range –65 to +150°C
- Storage Temperature range of –65 to +200°C
 - NOTE 1: Each Diode
 - NOTE 2: Pulsed: P_w = 100 ms max; duty cycle <20%
 - NOTE 3: Derate at 2.4 mA/°C above +25°C
 - NOTE 4: Derate at 4.0 mW/°C above +25°C

10-PIN Ceramic Flat Pack

- Weight 0.25 grams (approximate)
- Marking: Logo, part number, date code and dot identifying pin #1

APPLICATIONS / BENEFITS

IEC 61000-4 Compatible (see circuit in figure 1)

61000-4-2 ESD : Air 15kV, contact 8kW

61000-4-4 (EFT) : 40A - 5/50 ns

MECHANICAL AND PACKAGING

61000-4-5 (surge): 12A 8/20 μs

RS-232 & RS-422 Interface Networks

High Frequency Data Lines

Ethernet: 10 Base T

Computer I/O Ports

Switching Core Drivers

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LAN

Carrier Tubes; 19 pcs (standard)

ELECTRICAL CHARACTERISTICS (Per Diode) @ 25°C unless otherwise specified									
						MAXIMUM			
1						DEVEDSE			

PART	MAXIMUM FORWARD VOLTAGE V _{F1} I _F = 100 mA (Note 1)	MAXIMUM FORWARD VOLTAGE V _{F2} I _F = 500 mA (Note 1)	MAXIMUM REVERSE CURRENT I _{R1} V _R = 40 V	MAXIMUM CAPACITANCE (PIN TO PIN) C _t V _R = 0 V F = 1 MHz	MAXIMUM FORWARD RECOVERY TIME t _{fr} I _F = 500 mA	REVERSE RECOVERY TIME trr $I_F = I_R = 200 mA$ $i_{rr} = 20 mA$ $R_L = 100 ohms$	
NUMBER	Vdc	Vdc	μAdc	pF	ns	ns	
1N5772	1	1.5	0.1	8.0	40	20	

NOTE 1: Pulsed: P_W = 300 µs +/- 50 µs, duty cycle $\leq 2\%$, 90 µs after leading edge.



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SYMBOLS & DEFINITIONS Symbol DEFINITION Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specified current. V_{BR} Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current. V_{F} Maximum Leakage Current: The maximum leakage current that will flow at the specified voltage and I_R temperature. Capacitance: The capacitance of the TVS as defined @ 0 volts at a frequency of 1 MHz and stated in Ct picofarads. SCHEMATIC PACKAGE DIMENSIONS .290 MAX .005 MIN 019 .006 .010 .003 .370 .240 T (5) (4)3 2 .260 .280 .240 MAX 8 ٩ 10 6 \bigcirc CIRCUIT .050 .005 .370 Supply rail $(+V_{CC})$.240 .045 .090 I/O Port MAX .030 .050 BSC GND (or -V_{CC}) **Steering Diode Application FIGURE 1**

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