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S	COTTSDALE DIVISION

1N5770

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

Carrier Tubes; 19 pcs (standard)

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DESCRIPTION

These low capacitance diode arrays with common anode 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 ground (see figure 1). This circuit application is further complimented by the 1N5768 (separate data sheet) that has a common cathode. 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.

APPEARANCE



10-PIN Ceramic

Flat Pack

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

FEATURES **APPLICATIONS / BENEFITS** High Frequency Data Lines • Hermetic Ceramic Package RS-232 & RS-422 Interface Networks • Isolated Diodes To Eliminate Cross-Talk Voltages Ethernet: 10 Base T High Breakdown Voltage $V_{BR} > 60$ V at 10 μ A Computer I/O Ports • Low Leakage I_R< 100nA at 40 V LAN • Low Capacitance C < 8.0 pF Switching Core Drivers . IEC 61000-4 Compatible (see circuit in figure 1) Options for screening in accordance with MIL-PRF-61000-4-2 ESD : Air 15kV, contact 8kW 19500/474 for JAN, JANTX, JANTXV, and JANS are 61000-4-4 (EFT) : 40A - 5/50 ns available by adding MQ, MX, MV, or MSP prefixes 61000-4-5 (surge): 12A 8/20 μs respectively to part numbers. For example, designate MX1N5770 for a JANTX screen. MAXIMUM RATINGS **MECHANICAL AND PACKAGING** V_{BR} Reverse Breakdown Voltage 60 V min (Notes 1 & 2) 10-PIN Ceramic Flat Pack . Io Continuous Forward Current 300 mA (Notes 1 & 3) Weight 0.25 grams (approximate) I_{FSM} Forward Surge Current (tp=1/120 s) 500 mA (Note 1) Marking: Logo, part number, date code and dot 400 mW Power Dissipation per Junction @ 25°C identifying pin #1

- 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

NOTE 4. Dela		ve +25 C					
ELECTRICAL CHARACTERISTICS (Per Diode) @ 25°C unless otherwise specified							
PART NUMBER	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	$\begin{array}{c} \text{MAXIMUM} \\ \text{CAPACITANCE} \\ (\text{PIN TO PIN}) \\ \text{C}_t \\ \text{V}_{\text{R}} = 0 \text{ V} \\ \text{F} = 1 \text{ MHz} \end{array}$	MAXIMUM FORWARD RECOVERY TIME t _{fr} I _F = 500 mA	$\begin{tabular}{l} MAXIMUM \\ REVERSE \\ RECOVERY TIME \\ trr \\ I_F = I_R = 200 \mbox{ mA} \\ i_{rr} = 20 \mbox{ mA} \\ R_L = 100 \mbox{ ohms} \end{tabular}$	
	Vdc	Vdc	μAdc	pF	ns	ns	

8.0

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

1.5

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0.1

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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 Reverse Current: The maximum reverse current that will flow at the specified voltage and I_R temperature Forward Surge Current: The peak forward surge current at a specified pulse width IFSM Capacitance: The capacitance of the diode as defined @ 0 volts at a frequency of 1 MHz and stated in Ct picofarads. PACKAGE DIMENSIONS SCHEMATIC O 10 .290 MAX $2 \subset$.005 .019 .006 .010 MIN .003 5 .370 .240 8 4 5 3 0 Ð 9 C .280 .260 O1: NOT CONNECTED MAX .240 8 9 06 \bigcirc .050 .005 .370 .240 CIRCUIT Supply rail (+V_{CC}) .045 MAX .090 .030 .050 BSC I/O Port GND (or -V_{CC}) **Steering Diode Application** FIGURE 1

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