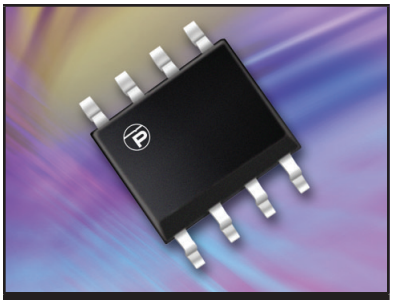
ULTRA LOW CAPACITANCE STEERING DIODE ARRAY



SO-8 PACKAGE

DESCRIPTION

The ET721 is a low capacitance and low leakage steering diode array capable of protecting up to six (6) high speed data lines. Its ultra low capacitance allows maintenance of signal integrity for high-speed data lines while protecting the circuit ICs from the damage of severe transients. An extremely low leakage current makes the ET721 suitable for battery powered devices.

The ET721 is available in a SO-8 package. This device meets all the applicable voltage immunity standards, including IEC 61000-4-2 (ESD), 61000-4-4 (EFT) and 61000-4-5 (Surge).

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 12A, 8/20µs - Level 1(Line-Gnd) & Level 2(Line-Line)
- Low Clamping Voltage
- Provides Six Lines of Protection
- Low Leakage Current: <200nA
- Ultra Low Capacitance: 3pF Typical
- RoHS Compliant
- REACH Compliant

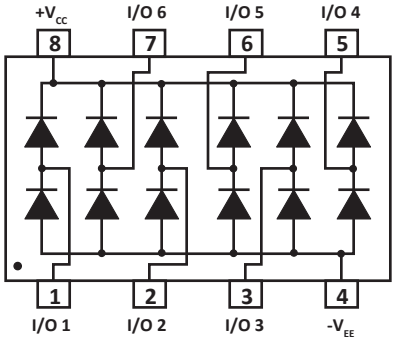
APPLICATIONS

- Ethernet 10/100/1000 Base T
- SMART Phones
- Set-Top Box Interface
- FireWire & USB Interfaces
- Sensors

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

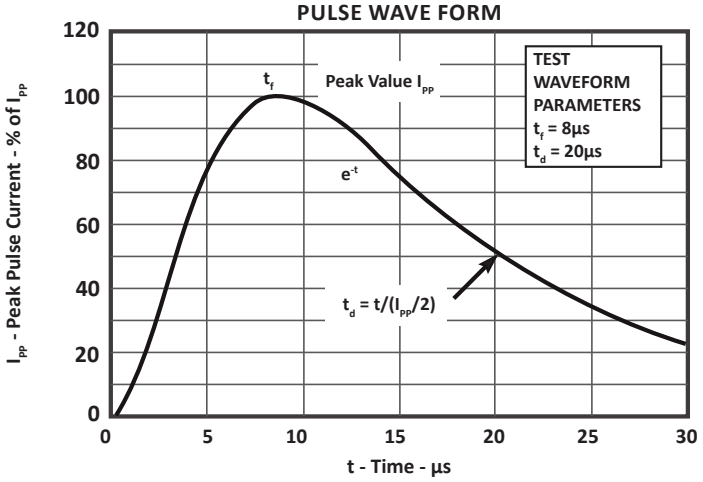
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	T_A	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Continuous Power Dissipation	P_{PC}	145	mW

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	REPETITIVE PEAK REVERSE VOLTAGE (Note 1) V_{RRM} VOLTS	TYPICAL FORWARD VOLTAGE 8/20µs @ 1A V_F VOLTS	MAXIMUM PEAK PULSE FORWARD CURRENT @ 8/20µs I_{FM} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT (Note 2) V_{RRM} I_R nA	MAXIMUM QUIESCENT SUPPLY CURRENT (Note 3) @ 20V I_{RQ} nA	TYPICAL CAPACITANCE 0V, 1MHz C_J pF
ET721	STA	50	2	12	20	200	3

NOTE
1. V_{RRM} is $+V_{CC}$ for pin 8, $-V_{EE}$ for pin 4.
2. +20V from pin 8 to 1, 2, 3, 5, 6 and 7. -20V from pin 4 to 1, 2, 3, 5, 6 and 7.
3. +20V from pin 8 to 4.

FIGURE 1
PULSE WAVE FORM



TYPICAL DEVICE CHARACTERISTICS

FIGURE 2
NON-REPETITIVE PEAK PULSE CURRENT CAPABILITY

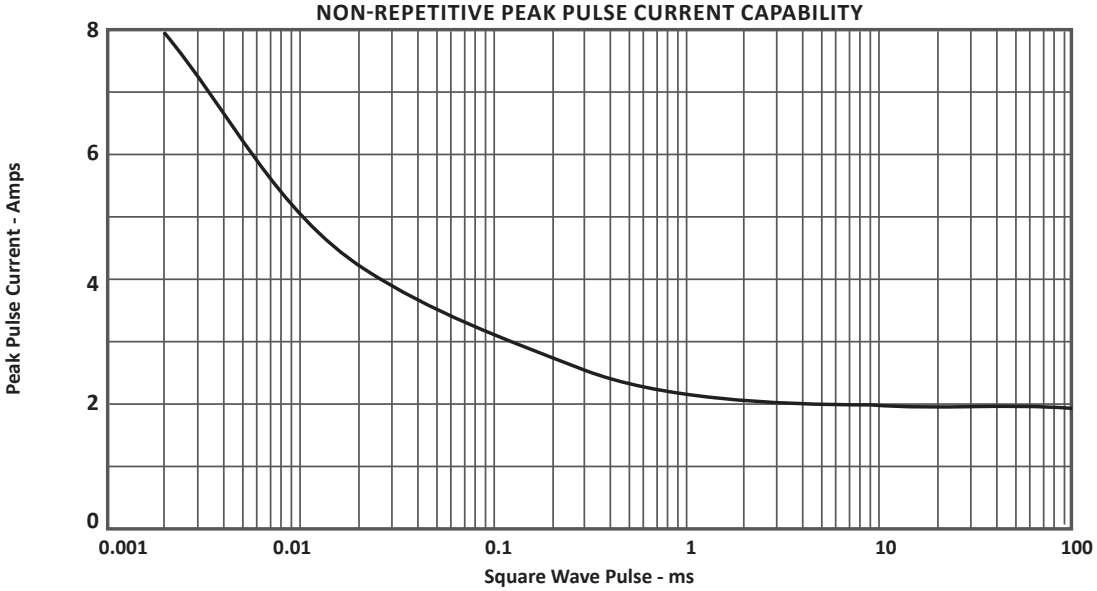


FIGURE 3
TYPICAL LOW CURRENT FORWARD VOLTAGE DROP

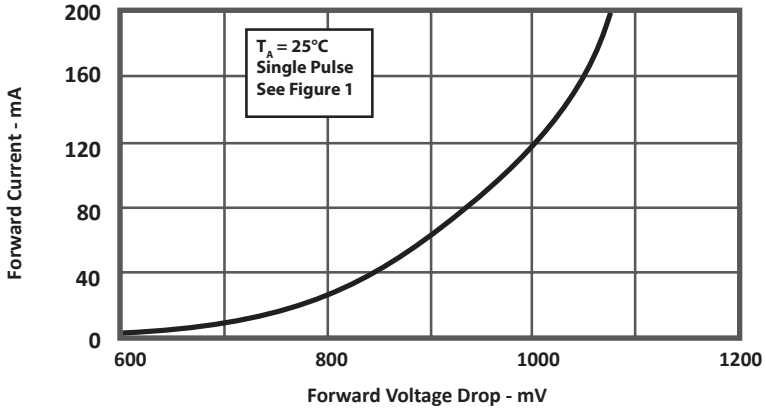
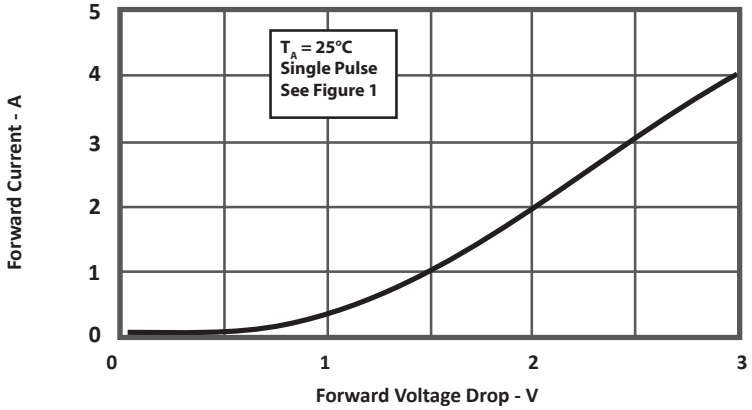
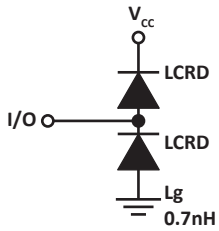


FIGURE 4
LOW FORWARD CURRENT VS FORWARD VOLTAGE



SPICE MODEL

FIGURE 1
SPICE MODEL



LCRD - Low Capacitance Rectifier Diode
Lg - Lead Inductance

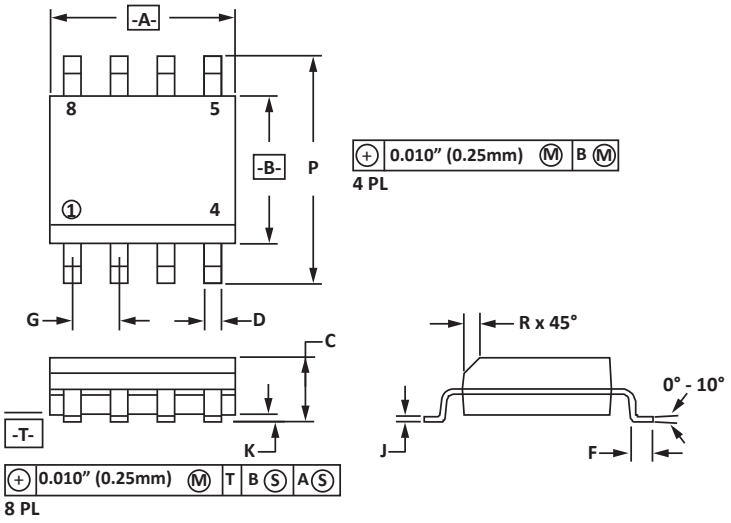
TABLE 1 - SPICE PARAMETERS

PARAMETER	UNIT	LCRD
BV	V	200
IBV	µA	0.01
C_{jo}	pF	3
I_s	A	1E-13
Vj	V	0.6
M	-	0.33
N	-	1
R_s	Ohms	0.31
TT	s	1E-9
EG	eV	1.11

SO-8 PACKAGE INFORMATION

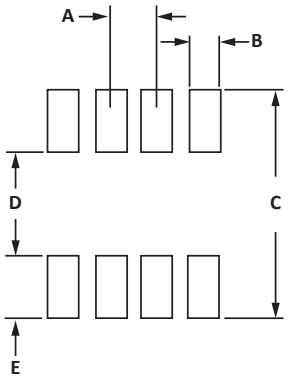
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.05 BSC	
J	0.18	0.25	0.007	0.009
K	0.10	0.25	0.004	0.008
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

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

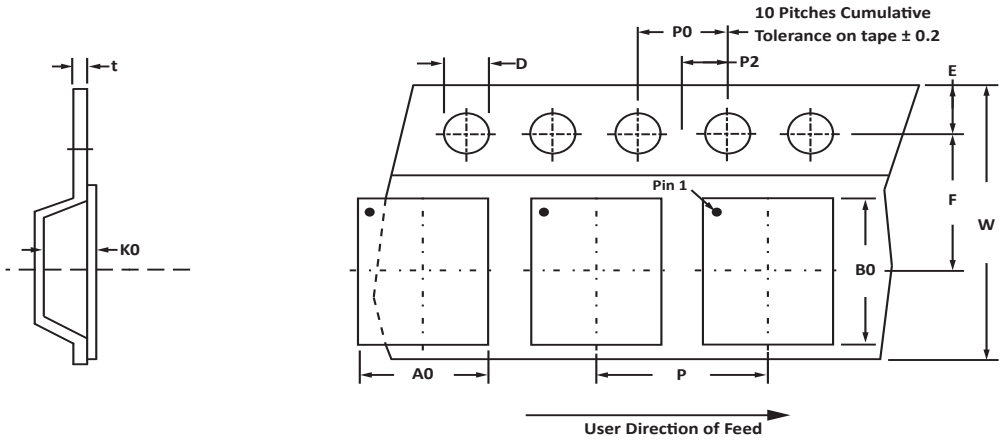


PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.14	1.40	0.045	0.055
B	0.64	0.89	0.025	0.035
C	6.22	-	0.245	-
D	3.94	4.17	0.155	0.165
E	1.02	1.27	0.040	0.050

NOTES
1. Controlling dimension: inches.



TAPE AND REEL



SPECIFICATIONS												
REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	12mm	6.50 ± 0.10	5.40 ± 0.10	2.00 ± 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	4.00 ± 0.10	0.25

NOTES
1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T7 = 7" Reel - 1,000 pieces per 12mm tape.
4. Suffix - T13 = 13" Reel - 2,500 pieces per 12mm tape.
5. Bulk product shipped in tubes of 98 pieces per tube.
6. Marking on Part - marking code (see page 2), date code, logo and pin one defined by dot on top of package.

Package outline, pad layout and tape specifications per document number 06011.R4 8/10.

ORDERING INFORMATION					
BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
ET721	-LF	-T7	1,000	7"	98
ET721	-LF	-T13	2,500	13"	98

COMPANY INFORMATION

COMPANY PROFILE

ProTek Devices, based in Tempe, Arizona USA, is a manufacturer of Transient Voltage Suppression (TVS) products designed specifically for the protection of electronic systems from the effects of lightning, Electrostatic Discharge (ESD), Nuclear Electromagnetic Pulse (NEMP), inductive switching and EMI/RFI. With over 25 years of engineering and manufacturing experience, ProTek designs TVS devices that provide application specific protection solutions for all electronic equipment/systems.

ProTek Devices Analog Products Division, also manufactures analog interface, control, RF and power management products.

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