

Ultra Low Capacitance TVS Diode Arrays

DESCRIPTION:

The KJESD0584P is 4-channel ultra low capacitance ESD transient voltage suppressor which provides a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge. It is particularly well-suited to protect systems with high speed communication lines from ESD, EFT, and lightning.

The KJESD0584P consists of eight low capacitance steering diodes and a TVS diode in a SOT package. Each line of KJESD0584P could safely dissipate ESD strikes of $\pm 15\text{KV}$ air discharge as well as $\pm 8\text{KV}$ contact discharge, meeting the requirement of the IEC 61000-4-2 international standard. Using the MIL-STD-883 (Method 3015) specification for Human Body Model (HBM) ESD, the device provides protection for contact discharges to greater than $\pm 15\text{KV}$.

FEATURES:

- ◆ Transient protection for data lines to
IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
IEC61000-4-4 (EFT) 40A (5/50ns)
IEC61000-4-5 (Lightning) 5A (8/20 μs)
- ◆ Protects two or four I/O lines
- ◆ Working voltage: 5V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ Low capacitance: 0.3 pF typical (I/O to I/O)
- ◆ RoHS Compliant

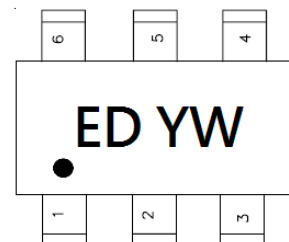
APPLICATIONS:

- ◆ High Definition Multi-Media Interface (HDMI)
- ◆ Digital Visual Interface (DVI)
- ◆ DisplayPort Interface
- ◆ MDDI Ports
- ◆ PCI Express
- ◆ eSATA Interfaces

MECHANICAL CHARACTERISTICS :

- ◆ JEDEC SOT23-6L package
- ◆ Molding compound flammability rating: UL 94V-0
- ◆ Packaging : Tape and Reel

MARKING:



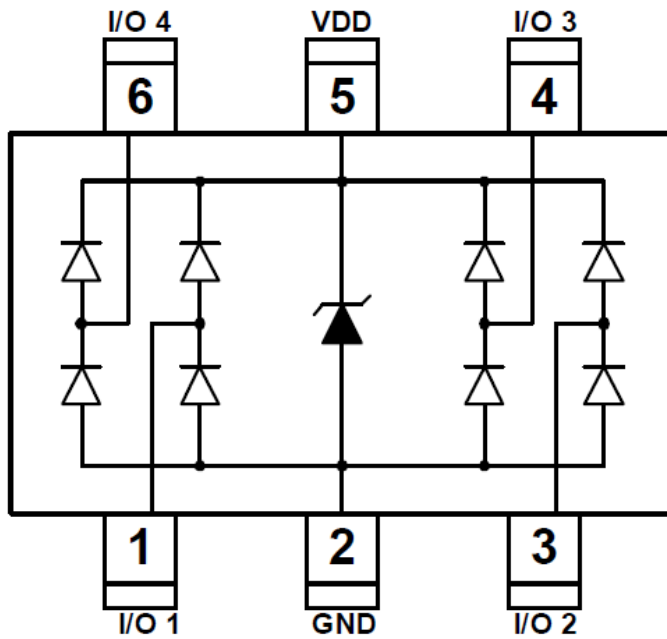
Y: Year Code

W: Week Code

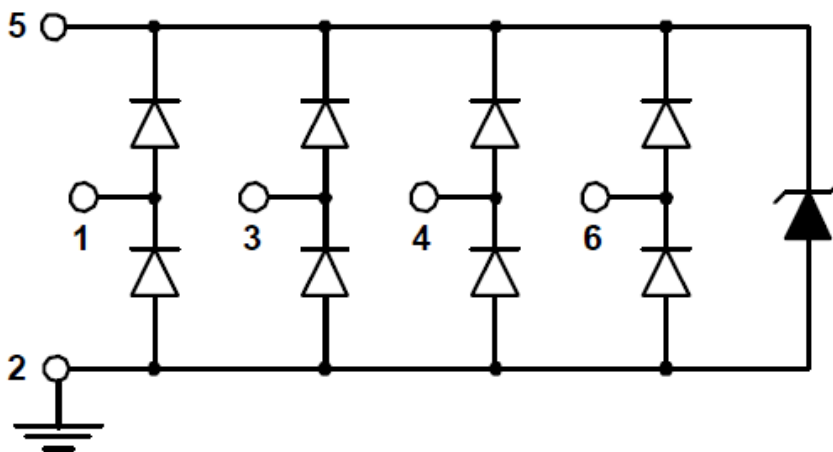
Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)

PIN IDENTIFICATION AND CONFIGURATION:

SOT23-6L (Top View):



Circuit Diagram:



ABSOLUTE MAXIMUM RATINGS:

(TA=25 Unless otherwise °C noted)

Parameter	Symbol	Typical	Unit
Peak Pulse Power ($t_p = 8/20 \mu s$)	P_{pk}	250	W
Maximum Peak Pulse Current ($t_p = 8/20 \mu s$)	I_{pp}	5	A
ESD per IEC 61000 – 4 – 2 (Air)	V_{pp}	± 15	KV
ESD per IEC 61000 – 4 – 2 (Contact)	V_{pp}	± 8	KV
Operating Junction Temperature	T_J	-55 ~ 150	°C
Storage Temperature Range	T_{STG}	-55 ~ 150	°C
Lead Soldering Temperature	TL	260 (10sec)	°C

ELECTRICAL CHARACTERISTICS:

(TA=25 Unless otherwise noted)°C

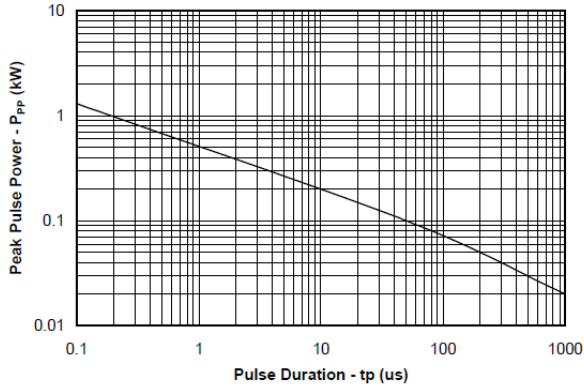
Parameter	Symbol	Conditions	Min.	Typ.	MAX.	Unit
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	6.1	7.7	8.5	V
Reverse Leakage Current	I_R	$V_{RWM}=5V, T=25^\circ C$			0.9	μA
Clamping Voltage	V_C	$I_{pp}=1A, t_p=8/20 \mu s$			18	V
Junction Capacitance	C_j	$V_R=0V, f=1MHz$ Any I/O pin to Ground			0.8	pF
		$V_R=0V, f=1MHz$ Between I/O pins		0.3	0.4	

ORDER INFORMATION:

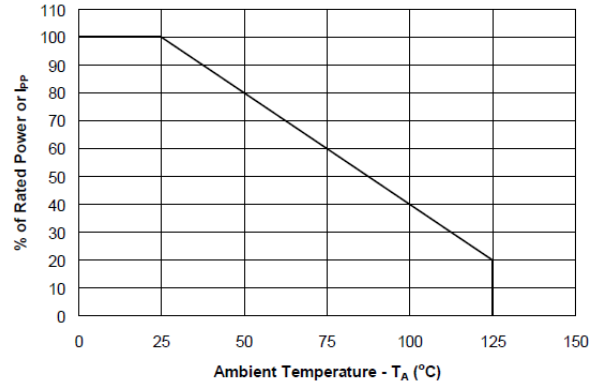
Par Number	Number of Lines	Package Type	Qty per Reel	Reel Size
KJESD0584P	4	SOT23-6L	3,000 pcs	7 inch

TYPICAL CHARACTERISTICS:

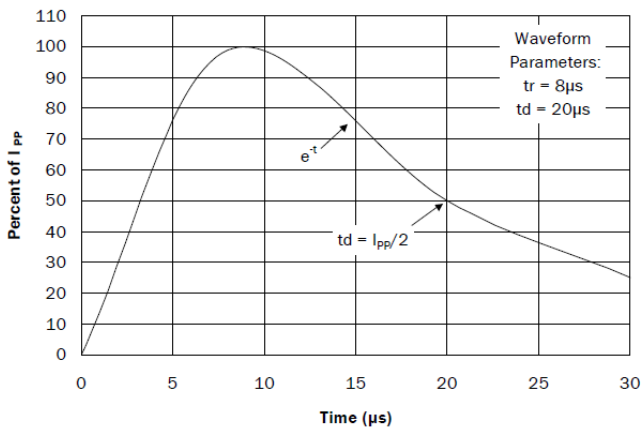
Non-Repetitive Peak Pulse Power vs. Pulse Time



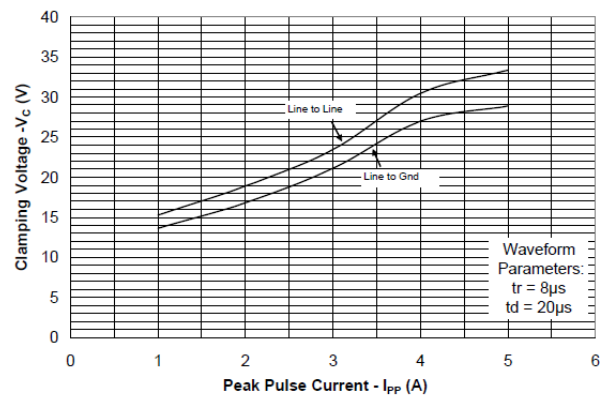
Power Derating Curve



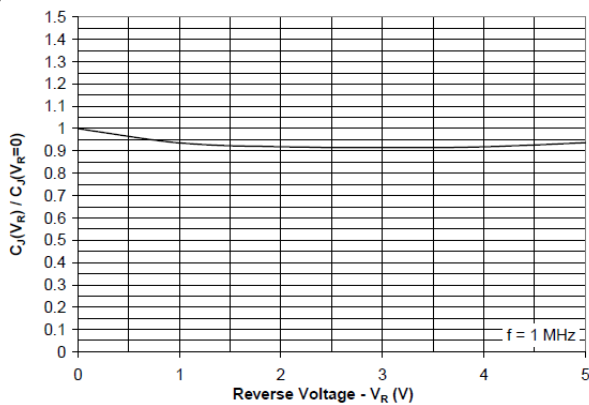
Pulse Waveform



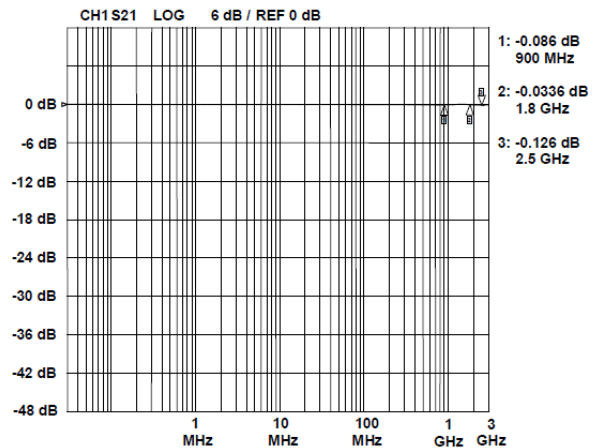
Clamping Voltage vs. Peak Pulse Current



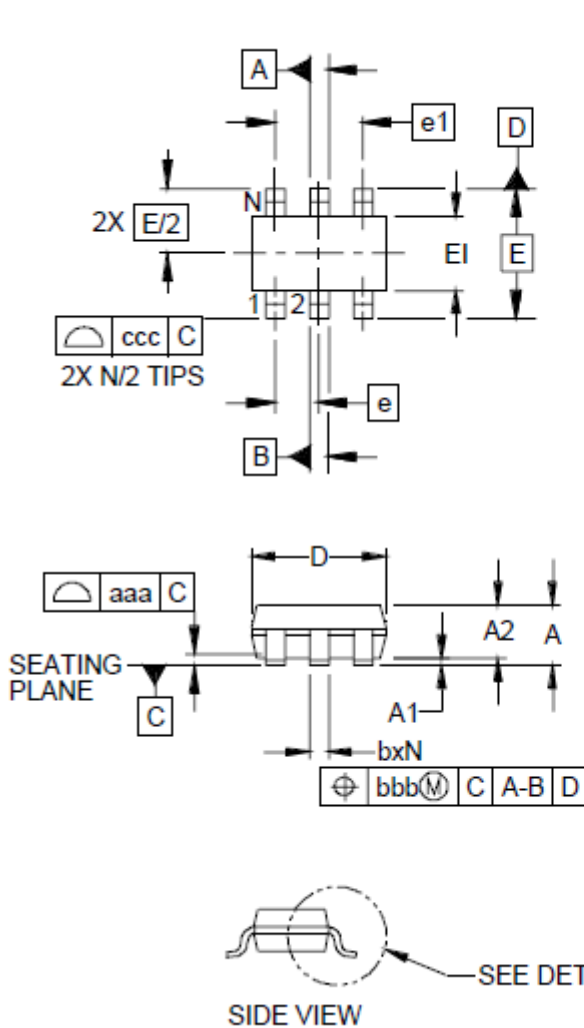
Normalized Capacitance vs. Reverse Voltage



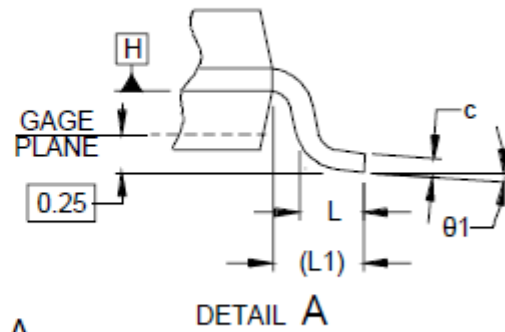
Insertion Loss S21 - I/O to GND



SOT23-6L PACKAGE OUTLINE:



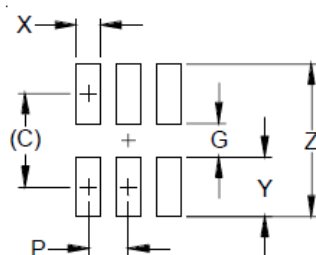
DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.057	0.90	-	1.45
A1	.000	-	.006	0.00	-	0.15
A2	.035	.045	.051	.90	1.15	1.30
b	.010	-	.020	0.25	-	0.50
c	.003	-	.009	0.08	-	0.22
D	.110	.114	.122	2.80	2.90	3.10
E1	.060	.063	.069	1.50	1.60	1.75
E	.110 BSC			2.80 BSC		
e	.037 BSC			0.95 BSC		
e1	.075 BSC			1.90 BSC		
L	.012	.018	.024	0.30	0.45	0.60
L1	(.024)			(0.60)		
N	6			6		
theta1	0°	-	10°	0°	-	10°
aaa	.004			0.10		
bbb	.008			0.20		
ccc	.008			0.20		



NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DATUMS **-A-** AND **-B-** TO BE DETERMINED AT DATUM PLANE **-H-**
3. DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

SOT23-6L Land Pattern:

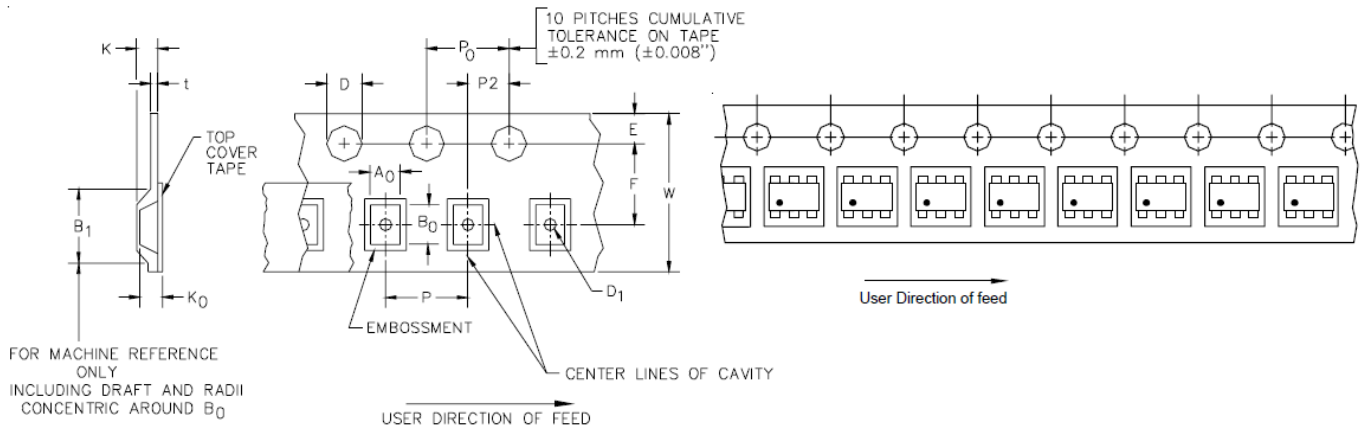


DIM	INCHES	MILLIMETERS
C	(.098)	(2.50)
G	.055	1.40
P	.037	0.95
X	.024	0.60
Y	.043	1.10
Z	.141	3.60

NOTES:

1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

TAPE AND REEL SPECIFICATION:



A0	B0	K0
3.23 +/-0.05 mm	3.17 +/-0.05 mm	1.37 +/-0.05 mm

Tape Width	B, (Max)	D	D1	E	F	K (MAX)	P	P0	P2	T(MAX)	W
8 mm	4.2 mm (.165)	1.5 + 0.1 mm - 0.0 mm	1.0 mm ±0.05	1.750±.10 mm	3.5±0.05 mm	2.4 mm	4.0±0.1 mm	4.0±0.1 mm	2.0±0.05 mm	0.4 mm	8.0 mm + 0.3 mm - 0.1 mm