



## JLE05UGT1 -3

2-Line Uni-directional TVS Diode Array

Jialan-Microelectronics

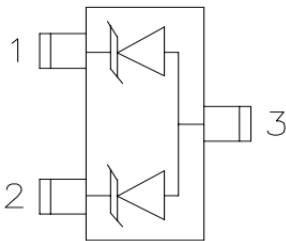
### Description

The JLE05UGT1 -3 is an uni-directional TVS diode array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting sensitive semiconductor components from damage. The JLE05UGT1 -3 complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a lead-free SOT-23 package. It is designed to protect components which are connected to data and transmission lines from voltage surges.

### Features

- \* 300W peak pulse power (8/20 $\mu\text{s}$ )
- \* Ultra Low leakage: nA level
- \* Operating voltage: 5V
- \* Low clamping voltage
- \* One power line protects
- \* Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
  - Air discharge:  $\pm 30\text{kV}$
  - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 22A (8/20 $\mu\text{s}$ )
- \* RoHS Compliant
- \* Package: SOT-23

### Circuit Diagram



Circuit and Pin Schematic

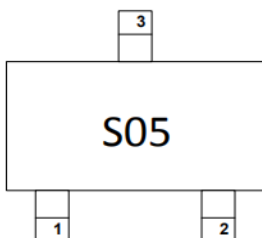
### Applications

- \* Peripherals
- \* Industrial Equipment
- \* Notebook Computers
- \* Portable Instrumentation
- \* Microprocessor Based Equipment
- \* Cell Phone Handsets and Accessories
- \* Personal Digital Assistants (PDAs) and Pagers

### Ordering Information

Part Number	Packaging	Reel Size
JLE05UGT1-3	3000/Tape & Reel	7 inch

### Marking Diagram



Transparent top view

S05:Device Marking Code



## JLE05UGT1-3

### Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

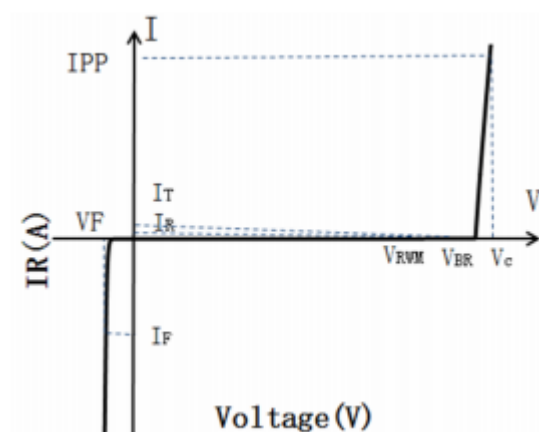
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	300	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	22	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

### Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{\text{RWM}}$				5	V
Breakdown Voltage	$V_{\text{BR}}$	$I_{\text{T}} = 1\text{mA}$	6			V
Reverse Leakage Current	$I_{\text{R}}$	$V_{\text{RWM}} = 5\text{V}$ , any I/O pin to ground			0.5	$\mu\text{A}$
Clamping Voltage	$V_{\text{C}}$	$I_{\text{PP}} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground			7	V
Clamping Voltage	$V_{\text{C}}$	$I_{\text{PP}} = 22\text{A}$ (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground			14	V
Junction Capacitance	$C_{\text{J}}$	$V_{\text{R}} = 0\text{V}$ , $f = 1\text{MHz}$ , any I/O pin to ground		160		pF

### Portion Electronics Parameter

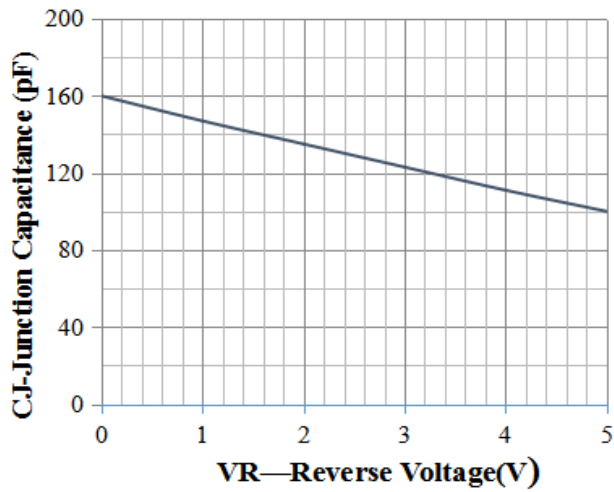
Symbol	Parameter
$I_{\text{T}}$	Test Current
$I_{\text{PP}}$	Maximum Reverse Peak Pulse Current
$V_{\text{C}}$	Clamping Voltage @ $I_{\text{C}}$



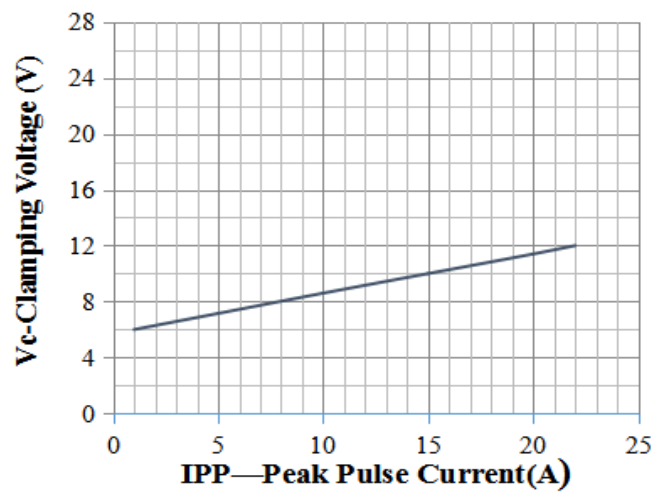


## JLE05UGT1-3

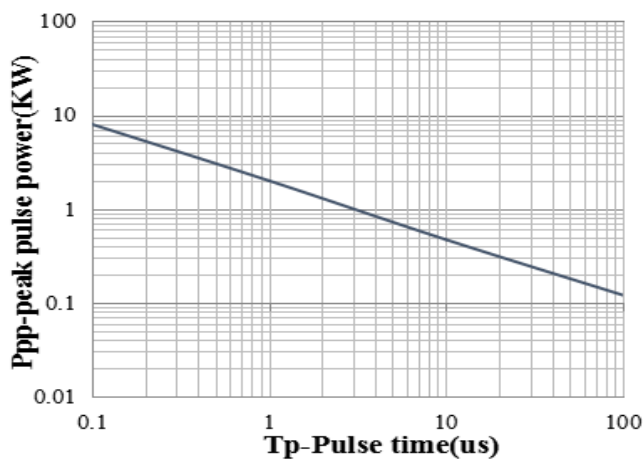
### Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise Specified)



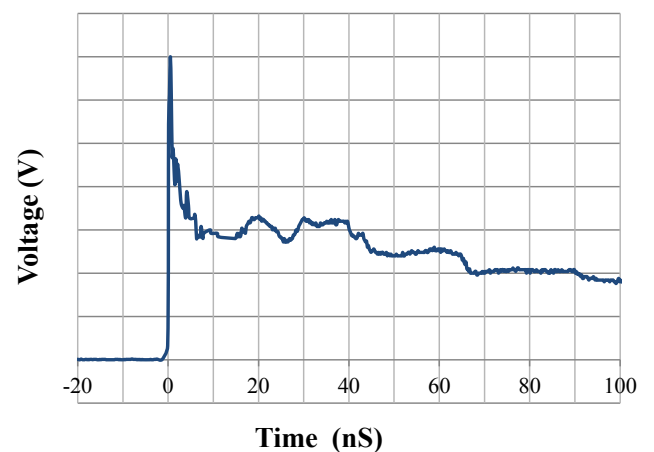
Junction Capacitance vs. Reverse Voltage



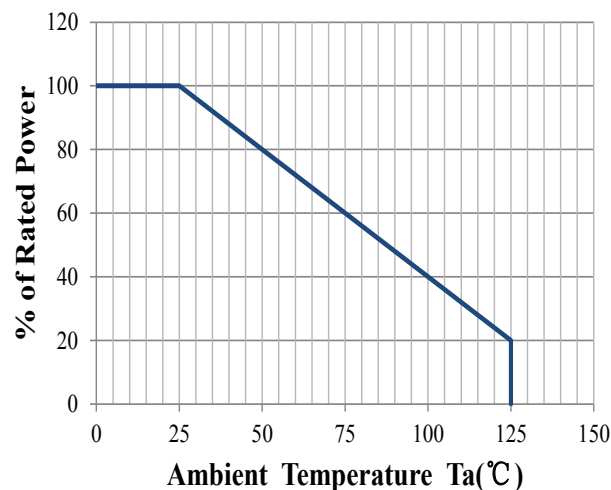
Clamping Voltage vs. Peak Pulse Current



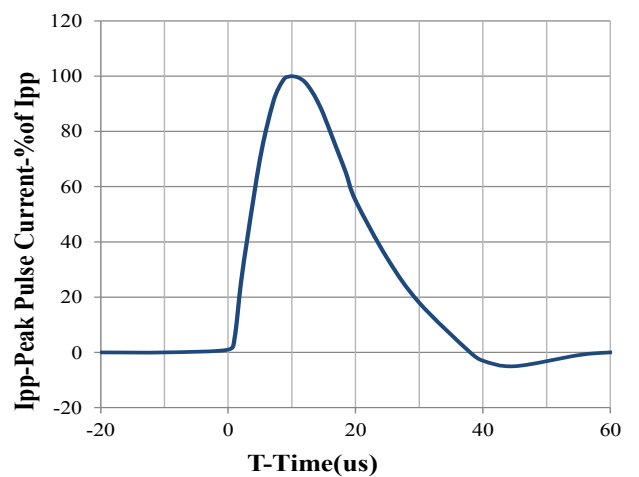
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

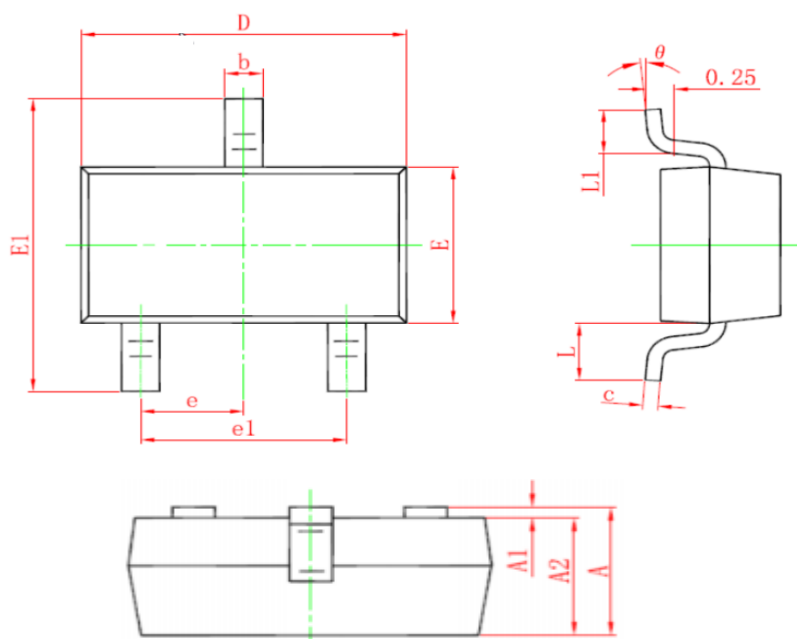


8 X 20us Pulse Waveform



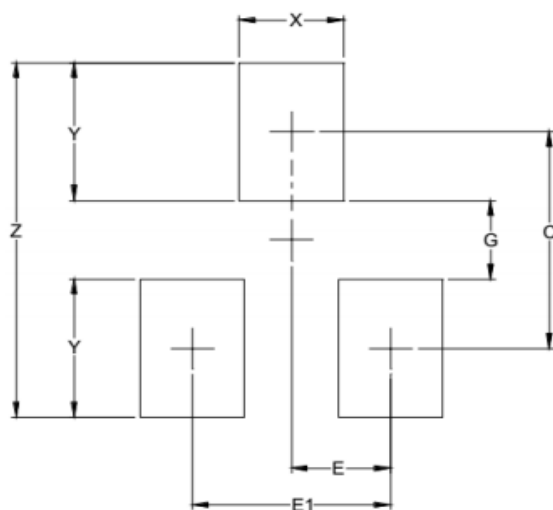
## JLE05UGT1-3

### SOT-23 Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	--	1.15	0.035	--	0.045
A1	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.05	0.035	--	0.041
b	0.30	--	0.50	0.012	--	0.020
c	0.08	--	0.15	0.003	--	0.006
D	2.80	--	3.00	0.110	--	0.118
E	1.20	--	1.40	0.047	--	0.055
E1	2.25	--	2.25	0.089		0.100
e	0.95TYP			0.037TYP		
e1	1.80	--	2.00	0.071	--	0.079
L	0.55REF			0.022REF		
L1	0.30	--	0.50	0.012	--	0.020
θ	0°	--	8°	0°	--	8°

### Suggested Land Pattern



SYM	DIMENSIONS	
	INCHES	MILLIMETERS
C	.087	2.20
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60

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