4-Line TVS Array

Description

The LSMF05L is a 5V TVS array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The LSMF05L complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. It is assembled into a 5-Pin lead-free SOT-353 package. The low clamping voltage array make it ideal for use in portable electronics such as cell phones, PDAs, and digital cameras.

Features

- Low leakage current
- Operating voltage: 5V
- Low clamping voltage
- JEDEC SOT-353 package
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 8A (8/20μs)
- RoHS Compliant

Mechanical Characteristics

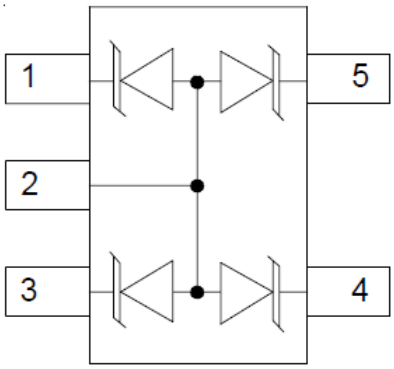
- Package: SOT-353
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

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

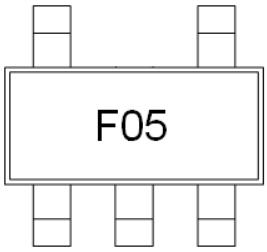
SOT-353

Dimensions and Pin Configuration



Pin Configuration

Marking Information



F05 = Device Marking Code
Dot denotes Pin1

Ordering Information

Part Number	Packaging	Reel Size
LSMF05L	3000/Tape & Reel	7 inch

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	100	W
Peak Pulse Current (8/20μs)	I_{PP}	8	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	
Reverse Breakdown Voltage	V_{BR}	6		8.5	V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 5V, any I/O pin to ground
Clamping Voltage	V_C			8	V	I_{PP} = 1A (8 x 20μs pulse), any I/O pin to ground
Clamping Voltage	V_C			12	V	I_{PP} = 8A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	C_J		60		pF	VR = 0V, f = 1MHz, any I/O pin to ground

Note 1: I/O pins are Pin 1, 3, 4, 5

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

Fig1. Junction Capacitance vs. Reverse Voltage

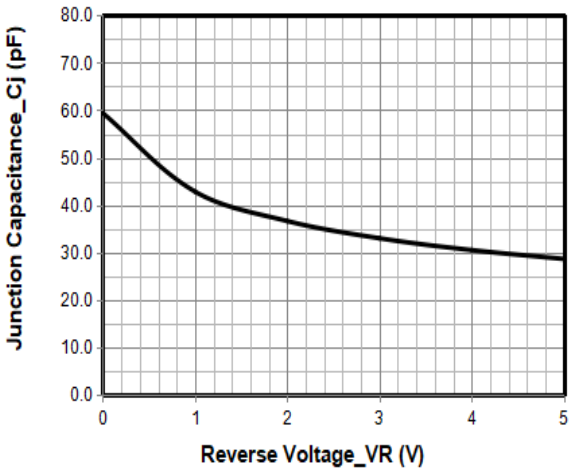


Fig2. Peak Pulse Power vs. Pulse Time

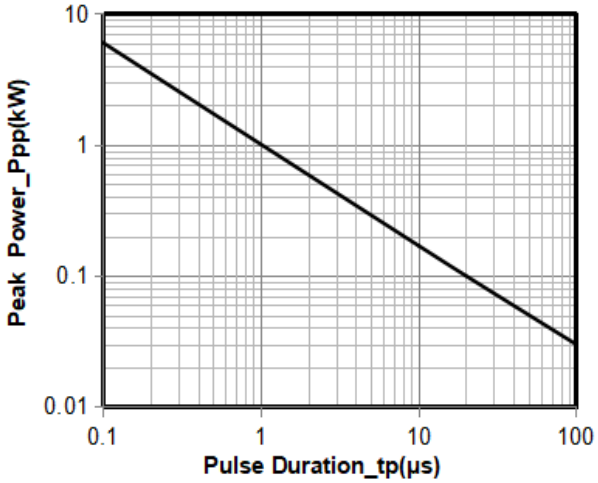


Fig3. Clamping Voltage vs. Peak Pulse Current

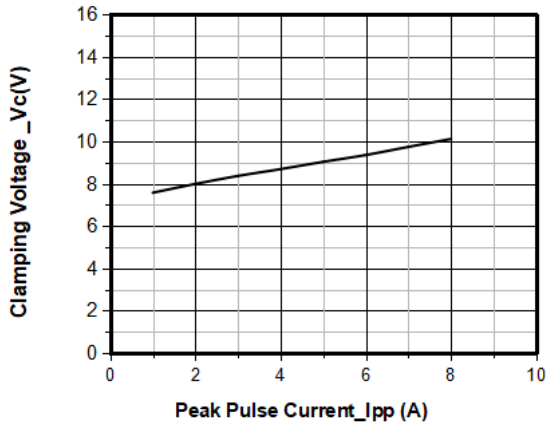


Fig4. Power Derating Curve

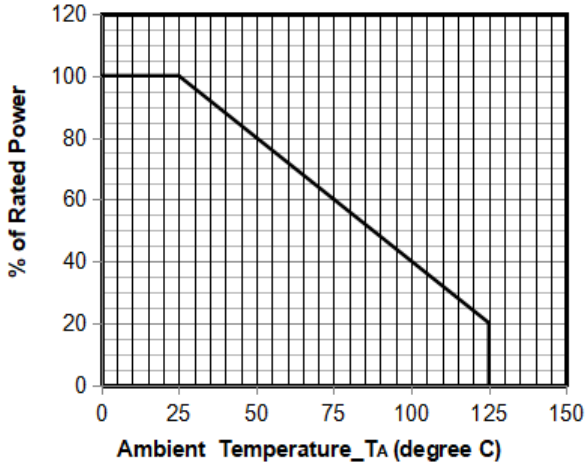


Fig5. 8 X 20μs Pulse Waveform

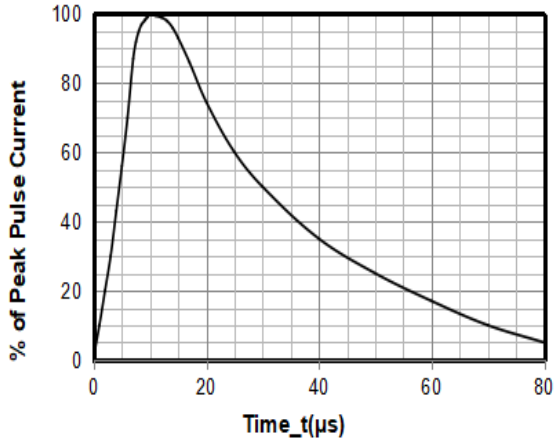
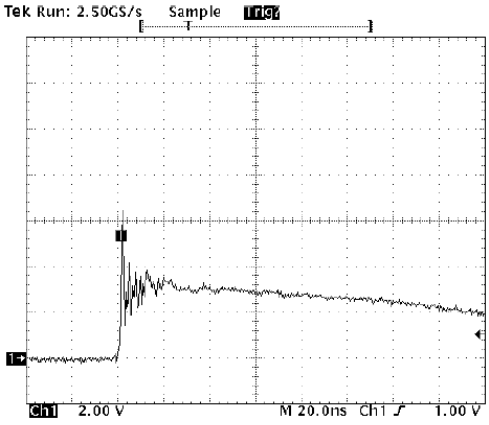


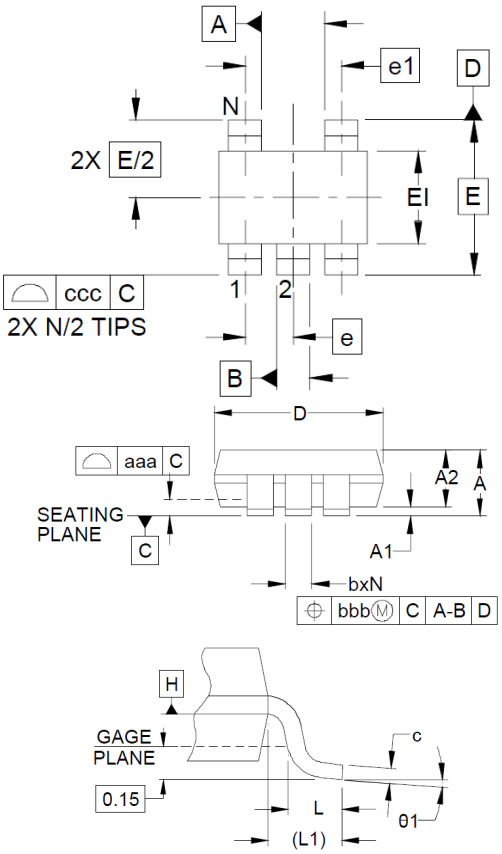
Fig6. ESD Clamping Voltage

(8 kV Contact per IEC61000−4−2)



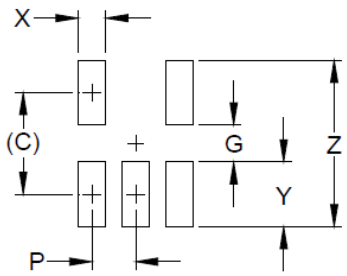
Note：Data is taken with a 10x attenuator

SOT-353 Package Outline Drawing



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	-	-	.043	-	-	1.10
A1	.000	-	.004	0.00	-	0.10
A2	.028	.035	.039	0.70	0.90	1.00
b	.006	-	.012	0.15	-	0.30
c	.003	-	.009	0.08	-	0.22
D	.075	.079	.083	1.90	2.00	2.10
E1	.045	.049	.053	1.15	1.25	1.35
E	.083 BSC			2.10 BSC		
e	.026 BSC			0.65 BSC		
e1	.051			1.30 BSC		
L	.010	.014	.018	0.26	0.36	0.46
L1	(.017)			(0.42)		
N	5			5		
θ1	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.004			0.10		
ccc	.012			0.30		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.85	0.073
G	1.00	0.039
P	0.65	0.026
X	0.40	0.016
Y	0.85	0.033
Z	2.70	0.106

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