

低电容、ESD保护二极管阵列

UESD6V8L4A SC70-5/SC88A/SOT353

UESD6V8L4B SC89-5/SOT553/SOT665

UESD6V8L5A6 SC70-6/SC88/SOT363

UESD6V8L5B SC89-6/SOT563/SOT666

1 描述

UESD6V8Lxx二极管阵列设计用于保护敏感电子元件免受ESD造成的损坏或闩锁，适用于电路板空间有限的应用。该器件是单向器件，可用于信号极性高于地的线路。UESD6V8L4A和UESD6V8L4B可保护4条线路，而UESD6V8L5A6和UESD6V8L5B可保护5条线路。TVS二极管是固态器件，具有大截面积结点，可传导高瞬态电流，特别适用于瞬态抑制。该器件具有电路板级保护的电气特性，包括快速响应时间、低运行、低箝位电压和无器件劣化。UESD6V8Lxx可满足IEC 61000-4-2标准的第4级抗扰度要求。其小型封装使其非常适合用于手机、PDA、笔记本电脑和数码相机等便携式电子产品。UESD6V8Lxx采用双扩散技术制造，具有高速信号保护应用中所需的低结电容（20pF）。

2 应用

- 手机听筒和配件
- 无线电话
- PDA
- 笔记本电脑和掌上电脑
- 便携式设备
- 数码相机
- 外围设备
- MP3 播放器

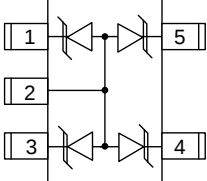
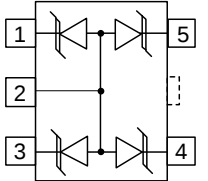
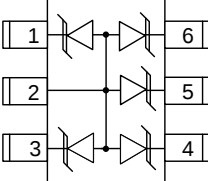
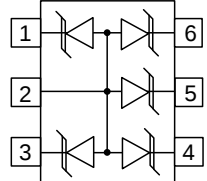
3 特性

- 数据线瞬态保护符合IEC 61000-4-2标准：、 $\pm 15\text{kV}$ （空气间隙放电）， $\pm 8\text{kV}$ （接触放电）
- 超小型封装
- 反向工作电压：5V
- 低漏电流
- 低钳位电压
- 固态硅雪崩技术

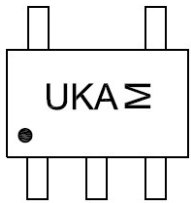
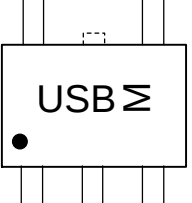
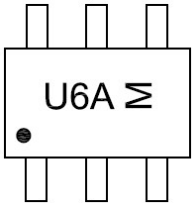
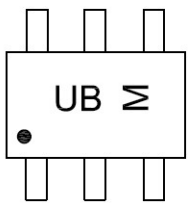
4 订购信息

芯片型号	反向工作电压	封装类型	通道	丝印编码	发货数量
UESD6V8L4A	5.0V	SC70-5/SC88A/SOT353	4	UKA	3000pcs/7Inch Tape & Reel
UESD6V8L4B		SC89-5/SOT553/SOT665		USB	
UESD6V8L5A6		SC70-6/SC88/SOT363	5	U6A	
UESD6V8L5B		SC89-6/SOT563/SOT666		UB	

5 Pin Configuration and Function

 UESD6V8L4A SC70-5/SC88A/SOT353	 UESD6V8L4B SC89-5/SOT553/SOT665	 UESD6V8L5A6 SC70-6/SC88/SOT363	 UESD6V8L5B SC89-6/SOT563/SOT666
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5.1 Top View

 UKA Σ M: Month Code UESD6V8L4A SC70-5/SC88A/SOT353	 USB Σ M: Month Code UESD6V8L4B SC89-5/SOT553/SOT665	 U6A Σ M: Month Code UESD6V8L5A6 SC70-6/SC88/SOT363	 UB Σ M: Month Code UESD6V8L5B SC89-6/SOT563/SOT666
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6 Absolute Maximum Ratings

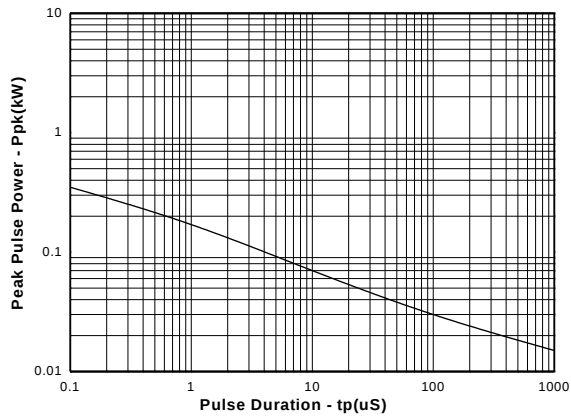
Rating	Symbol	Value	Unit
Peak Pulse Power ($t_p=8/20\mu s$)	P_{PK}	55	Watts
Lead Soldering Temperature	T_L	260 (10 sec.)	$^{\circ}C$
Operating Temperature	T_J	-55 to +125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +125	$^{\circ}C$
Maximum Junction Temperature	T_{JMAX}	150	$^{\circ}C$

7 Electrical Characteristics

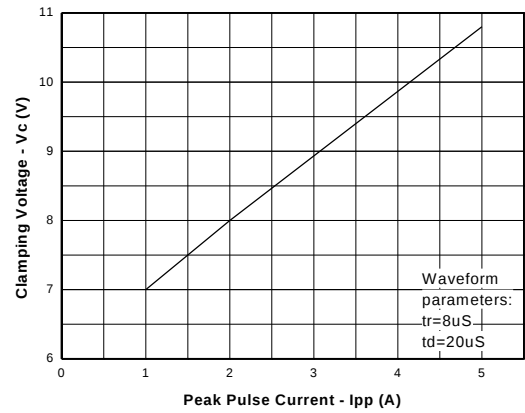
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	6	6.8	7.2	V
Reverse Leakage Current	I_R	$V_{RWM}=5V, T=25^{\circ}C$		0.005	0.1	μA
Clamping Voltage	V_C	$I_{PP}=1A, t_p=8/20\mu s$			6	V
		$I_{PP}=2A, t_p=8/20\mu s$			8	
		$I_{PP}=5A, t_p=8/20\mu s$			10.8	
Junction Capacitance	C_J	Pin 1, 3, 4, 5, 6 to 2 $V_R=0V, f=1MHz$		20	25	pF
Junction Capacitance	C_J	Pin 1, 3, 4, 5, 6 to 2 $V_R=2.5V, f=1MHz$		12	17	pF

8 Typical Operating Characteristics

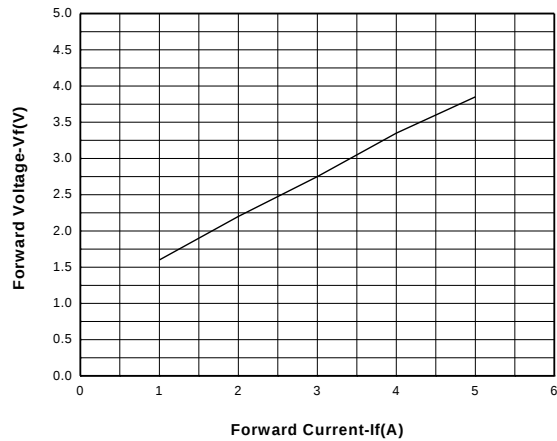
Non-Repetitive Peak Pulse Power vs. Pulse Time



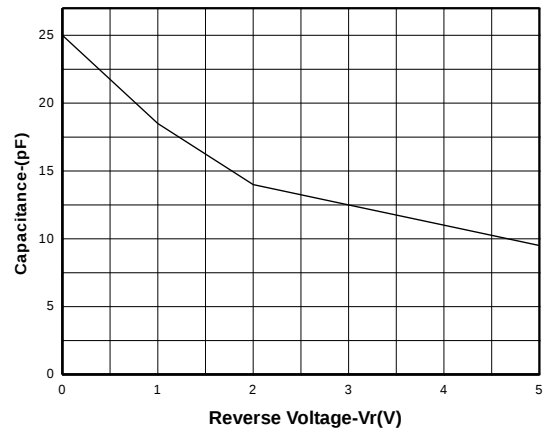
Clamping Voltage vs. Peak Pulse Current



Forward Voltage vs. Forward Current



Junction Capacitance vs. Reverse Voltage



9 Application Information

UESD6V8Lxx can use as unidirectional lines or bidirectional lines protector. For example, UESD6V8L4B can use as a four unidirectional lines protector, and also can use as a three bidirectional lines protector (as figure1 shows). For bidirectional applications, the junction capacitance between I/O ports and ground is half of the single TVS's junction capacitance, that is to say the typical value of the junction capacitance between I/O ports and ground is 6pF. The break down voltage of these two series connection TVS is a forwards voltage (about 0.7V) higher than a single TVS's.

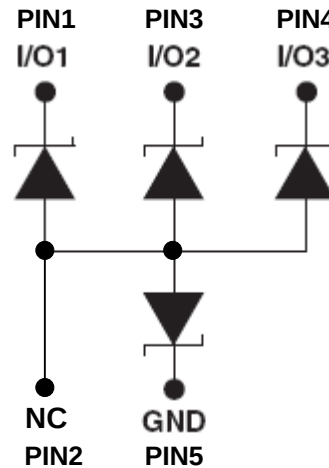


Figure1: UESD6V8L4B Used as Three Bidirectional Lines Protector

9.1 Circuit Board Layout Recommendations for Suppression of ESD

Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

1. Place the TVS near the input terminals or connectors to restrict transient coupling.
2. Minimize the path length between the TVS and the protected line.
3. Minimize all conductive loops including power and ground loops.
4. The ESD transient return path to ground should be kept as short as possible.
5. Never run critical signals near board edges.
6. Use ground planes whenever possible. For multilayer printed-circuit boards, use ground vias.
7. Keep parallel signal paths to a minimum.
8. Avoid running protection conductors in parallel with unprotected conductor.
9. Minimize all printed-circuit board conductive loops including power and ground loops.
10. Avoid using shared transient return paths to a common ground point.

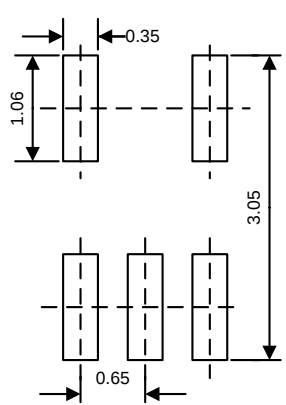
Package Information

SC70-5/SC88A/SOT353

Outline Drawing

DIMENSIONS						
Symbol	MILLIMETERS			INCHES		
	Min	Typ	Max	Min	Typ	Max
A	0.85	-	1.10	0.033	-	0.043
A1	0.00	-	0.10	0.000	-	0.004
A2	0.80	-	1.00	0.031	-	0.039
b	0.10	-	0.35	0.004	-	0.014
c	0.08	-	0.22	0.003	-	0.009
D	1.80	2.15	2.20	0.071	0.085	0.087
E	1.15	1.30	1.35	0.045	0.051	0.053
E1	2.00	-	2.45	0.079	-	0.096
e	0.65BSC			0.026REF		
L	0.25	-	0.46	0.010	-	0.018
θ	0°	-	8°	0°	-	8°

Land Pattern

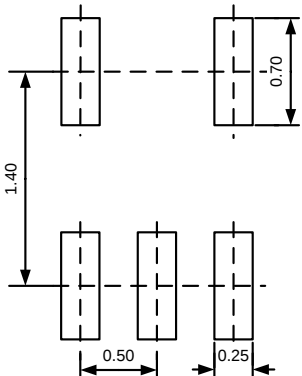
	NOTES: - Unit: mm; - General tolerance $\pm 0.05\text{mm}$ unless otherwise specified; - The layout is just for reference.
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SC89-5/SOT553/SOT665

Outline Drawing

DIMENSIONS						
Symbol	MILLIMETERS			INCHES		
	Min	Typ	Max	Min	Typ	Max
A	0.525	0.60	0.62	0.021	0.023	0.024
A1	0.00	-	0.05	0.000	-	0.002
b	0.15	-	0.30	0.006	-	0.012
c	0.09	-	0.18	0.004	-	0.007
D	1.50	1.60	1.70	0.059	0.063	0.067
E	1.10	1.20	1.30	0.043	0.047	0.051
E1	1.50	1.60	1.70	0.059	0.063	0.067
e	0.50BSC			0.020BSC		
e1	1.00BSC			0.039BSC		
F	0.00	-	0.10	0.000	-	0.004
L	0.10	0.20	0.30	0.004	0.008	0.012
θ	7° REF			7° REF		

Land Pattern

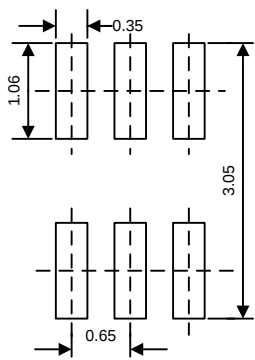
	NOTES: 1. Unit: mm; 2. General tolerance $\pm 0.05\text{mm}$ unless otherwise specified; 3. The layout is just for reference.
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SC70-6/SC88/SOT363

Outline Drawing

DIMENSIONS						
Symbol	MILLIMETERS			INCHES		
	Min	Typ	Max	Min	Typ	Max
A	0.90	-	1.10	0.035	-	0.043
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.90	-	1.00	0.035	-	0.039
b	0.10	0.25	0.35	0.004	0.010	0.014
c	0.08	0.11	0.22	0.003	0.004	0.009
D	1.80	2.15	2.20	0.071	0.085	0.087
E	1.15	1.30	1.35	0.045	0.051	0.053
E1	2.00	-	2.45	0.079	-	0.096
e	0.65BSC			0.026BSC		
L	0.25	-	0.46	0.010	-	0.018
θ	0°	-	8°	0°	-	8°

Land Pattern

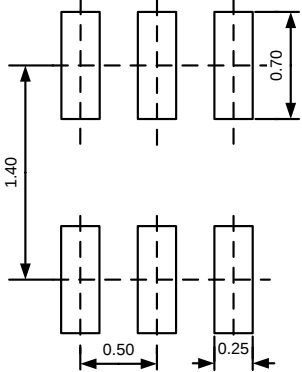
	NOTES: - Unit: mm; - General tolerance $\pm 0.05\text{mm}$ unless otherwise specified; - The layout is just for reference.
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SC89-6/SOT563/SOT666

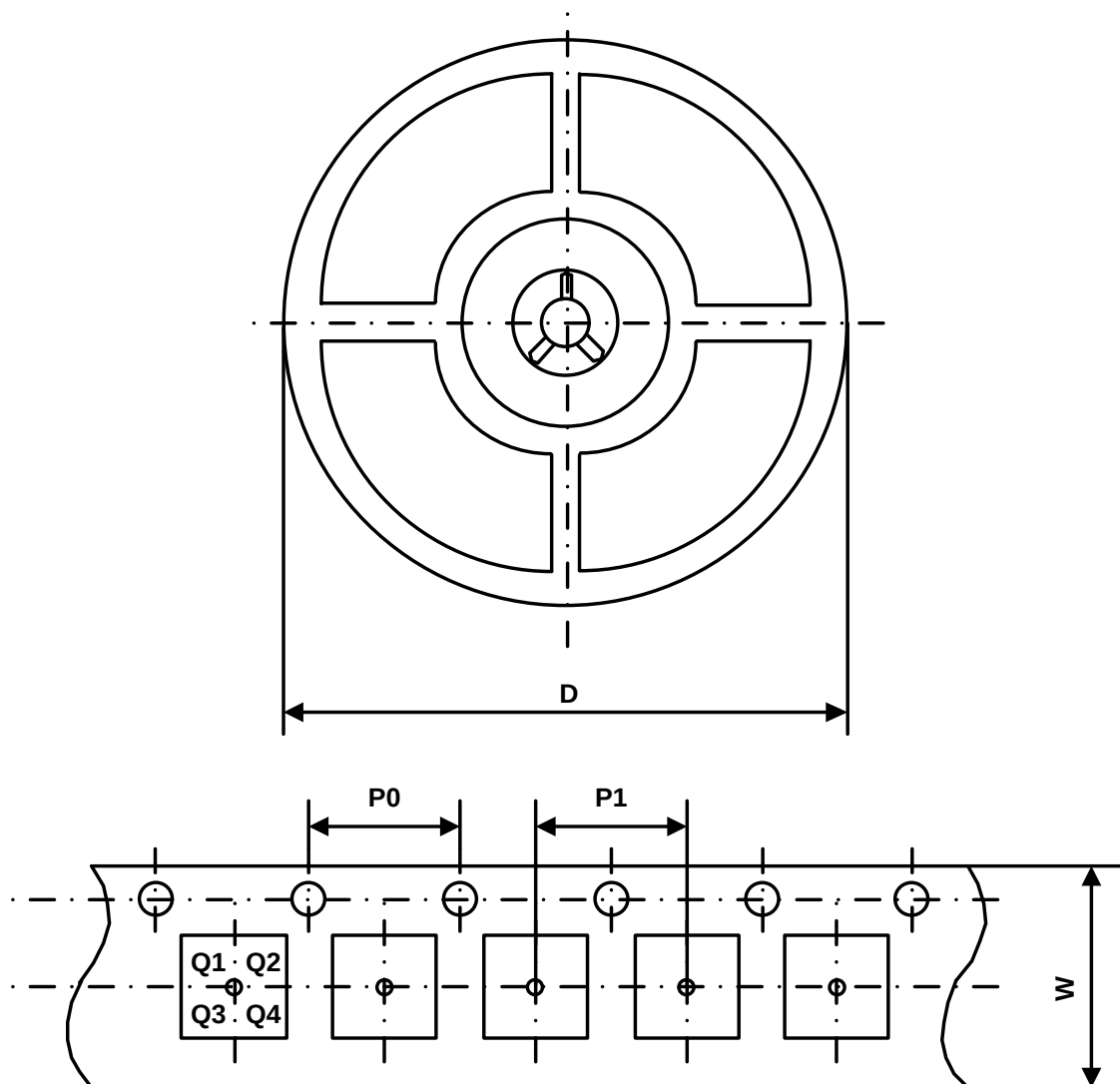
Outline Drawing

DIMENSIONS						
Symbol	MILLIMETERS			INCHES		
	Min	Typ	Max	Min	Typ	Max
A	0.525	0.60	0.62	0.021	0.023	0.024
A1	0.00	-	0.05	0.000	-	0.002
b	0.15	-	0.30	0.006	-	0.012
c	0.09	-	0.18	0.004	-	0.007
D	1.50	1.60	1.70	0.059	0.063	0.067
E	1.10	1.20	1.30	0.043	0.047	0.051
E1	1.50	1.60	1.70	0.059	0.063	0.067
e	0.50TYP			0.020TYP		
L	0.10	0.20	0.30	0.004	0.008	0.012
θ	7° REF			7° REF		

Land Pattern

	NOTES: - Unit: mm; - General tolerance $\pm 0.05\text{mm}$ unless otherwise specified; - The layout is just for reference.
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Packing Information



Part Number	Package Type	Carrier Width (W)	Pitch (P0)	Pitch (P1)	Reel Size (D)	PIN 1 Quadrant
UESD6V8L4A	SC70-5/SC88A/SOT353	8 mm	4 mm	4 mm	180 mm	Q3
UESD6V8L4B	SC89-5/SOT553/SOT665	8 mm	4 mm	4 mm	180 mm	Q3
UESD6V8L5A6	SC70-6/SC88/SOT363	8 mm	4 mm	4 mm	180 mm	Q3
UESD6V8L5B	SC89-6/SOT563/SOT666	8 mm	4 mm	4 mm	180 mm	Q3

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