

SuperESD - TPD2E2U06QDCKRQ1(ES)

1. Description

The TPD2E2U06QDCKRQ1(ES) is designed to protect voltage sensitive components from damage or latch-up due to ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD for board level. Because of its small size and uni-directional design, it is ideal for use in cellular phones, MP3 players, and portable applications that require audio line protection.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
 - $\pm 15\text{kV}$ Contact Discharge
 - $\pm 8\text{kV}$ Air Discharge
- 60W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- RoHS compliant
- Protecting two unidirectional lines
- Capacitance: 0.6pF (Typ.)

3. Applications

- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communication systems

4. Ordering Information

Part Number	Packag e	Markin g	Material	Packin g	Quantit y per reel	Flammabilit y Rating	Reel Size
TPD2E2U06QDCKRQ1(ES)	SOT-323	L5	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

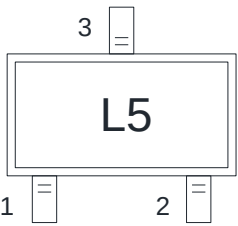
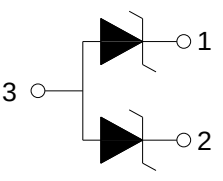
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		
3	GND	Connect to GND		

Table-2 Pin configuration

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P _{pk}	-	60	W
Peak pulse current (tp=8/20us)@25°C	I _{PP}		4	A
ESD (IEC61000-4-2 air discharge) @25°C	V _{ESD}	-	±15	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V _{ESD}	-	±8	kV
Junction temperature	T _J	-	150	°C
Operating temperature	T _{OP}	-40	125	°C
Storage temperature	T _{STG}	-55	150	°C
Lead temperature	T _L	-	260	°C

Table-3 Absolute Maximum rating

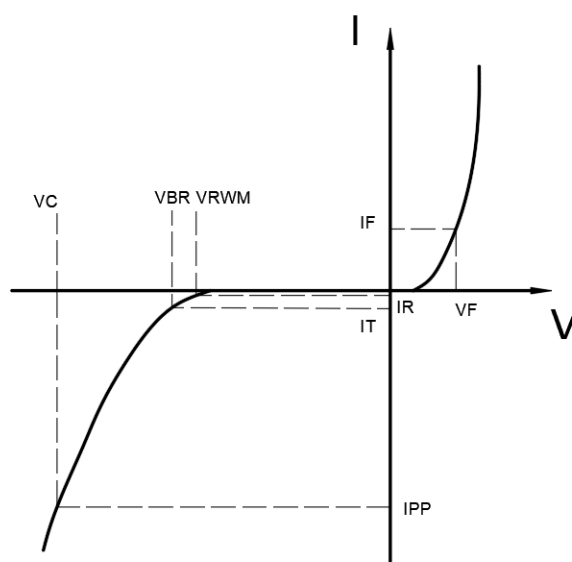
6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

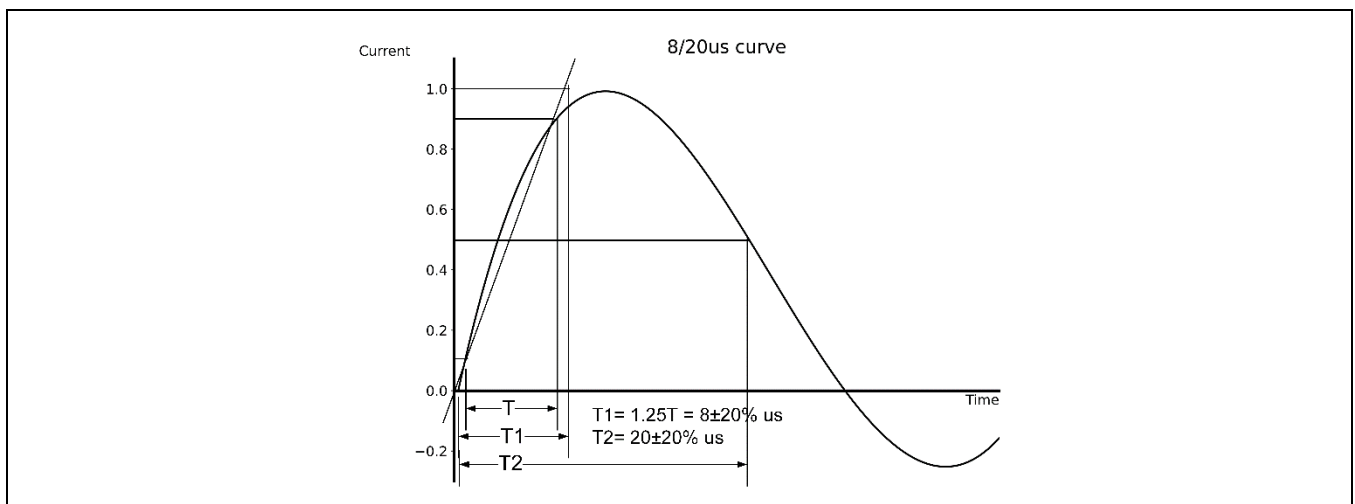
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	6.0			V
Reverse Leakage Current	I_R	$V_{RWM}=5V$			1.0	μA
Clamping Voltage	V_C	$I_{PP}=1A$; $t_p=8/20\mu s$		9.0	11.0	V
Clamping Voltage	V_C	$I_{PP}=4A$; $t_p=8/20\mu s$		11.0	13.0	V
Junction Capacitance	C_J	$V_R=0V$; $f=1MHz$		0.6	0.8	pF

Table-4 Electrical Characteristics

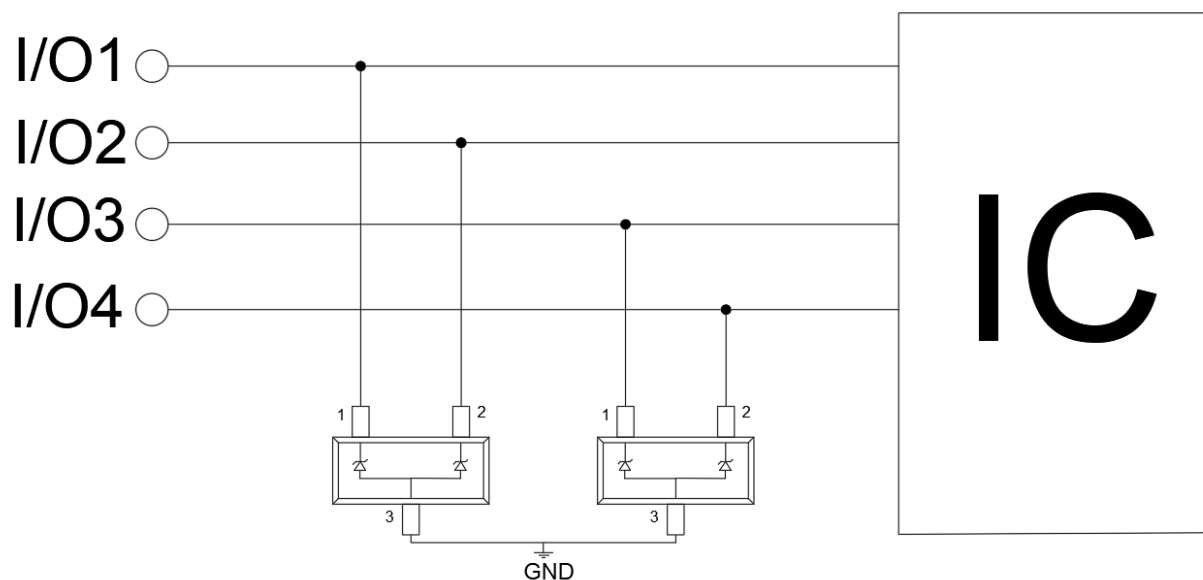
Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_F	Forward Current
V_F	Forward Voltage @ I_F



7. Typical Characteristic



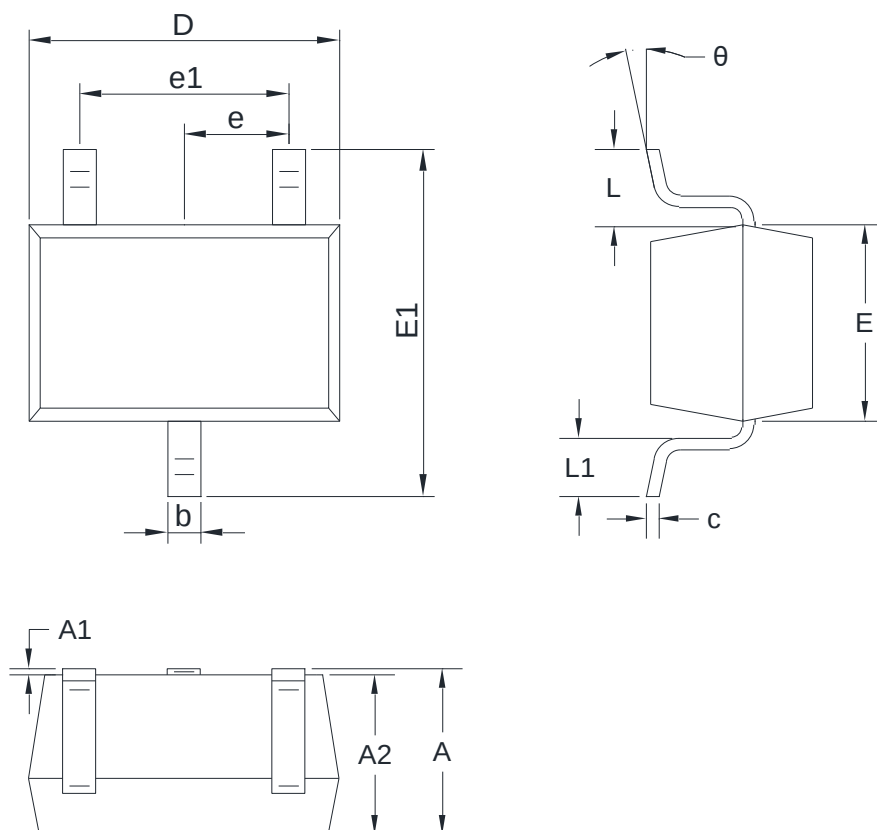
8. Typical Application



Typical Interface Application

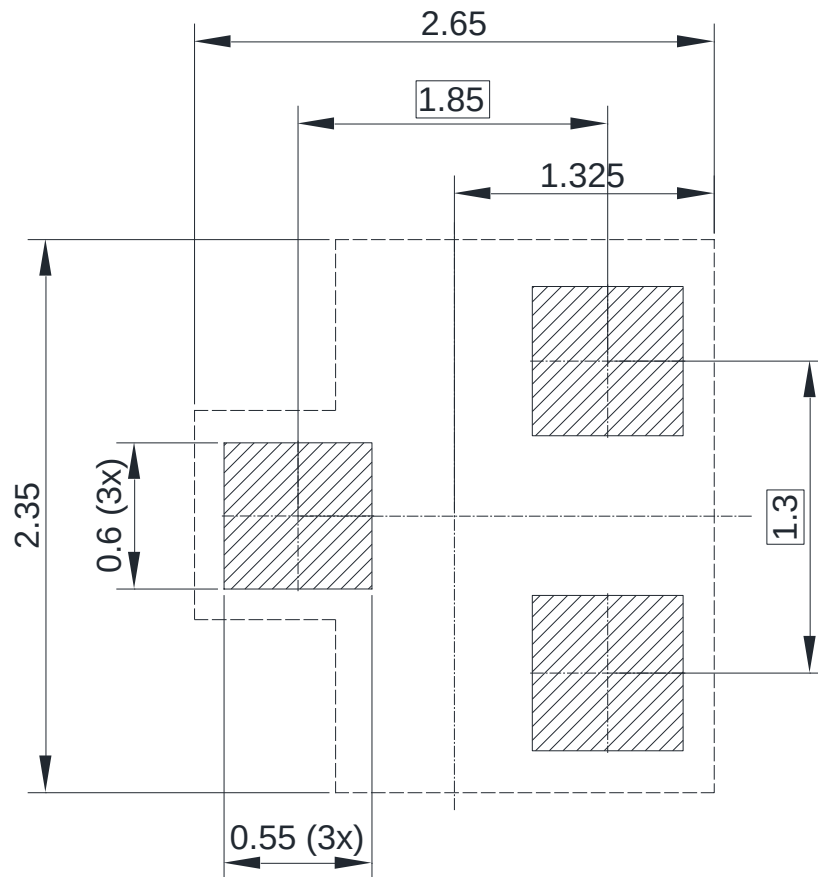
9. Dimension (SOT-323)

POD(Z)



Symbol	Millimeters		Symbol	Millimeters	
	Min	Max		Min	Max
A	0.80	1.00	E1	2.05	2.35
A1	0.00	0.10	e	0.65 TYP	
A2	0.80	0.90	e1	1.20	1.40
b	0.20	0.40	L	0.45 REF	
c	0.08	0.15	L1	0.26	0.46
D	2.00	2.20	θ	0°	8°
E	1.15	1.35			

10. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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