

LL054BT2510I

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LL054BT2510I

4-Channel Ultra Low Capacitance TVS For ESD Protection Array 5.0V

Features

- Complies with following standards
IEC61000 -4-2 (ESD) $\pm 20\text{kV}$ (Air), $\pm 20\text{kV}$ (Contact).
IEC 61000-4-4 (EFT) 40A (5/50ns) .
IEC 61000-4-5 (Lightning) 5.5A (8/20 μs) .
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates halogen-free parts, ex.LL054BT2510I-H.

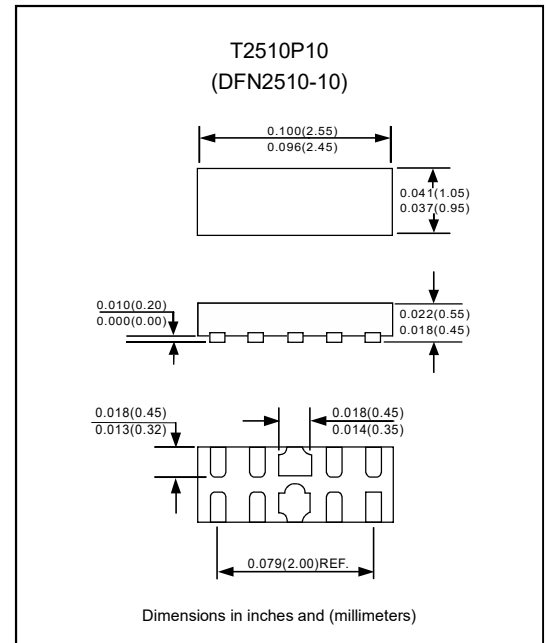
Applications

- HDMI1.3/1.4, USB2.0/3.0 and MDDI ports .
- Monitors and flat panel displays.
- Set-top box and digital TV.
- Video graphics cards, notebook computers, digital video interface. (DVI).
- PCI express and serial SATA ports.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant.
- Case : Molded plastic, T2510P10 (DFN2510-10).
- Mounting Position : Any.

Package outline



Maximum ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

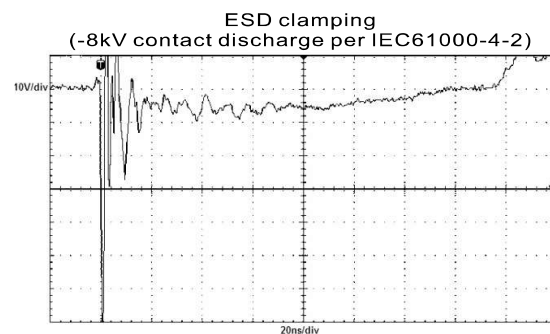
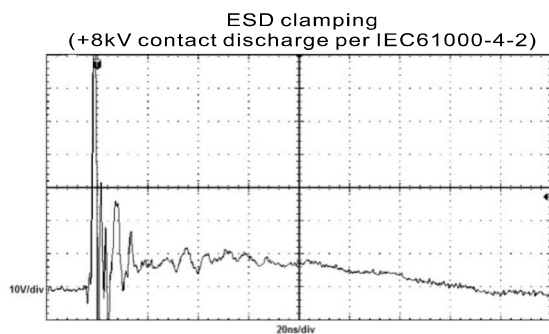
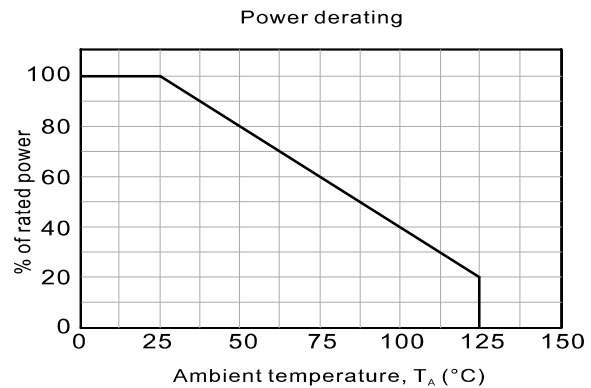
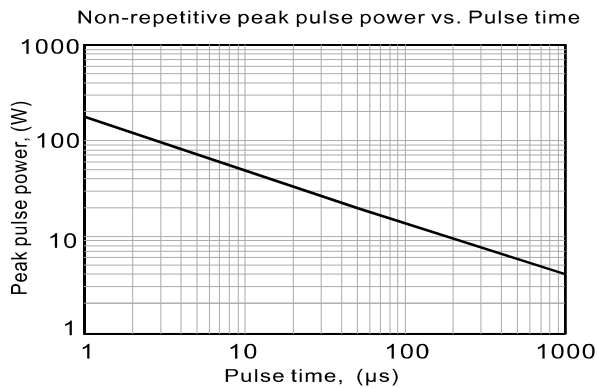
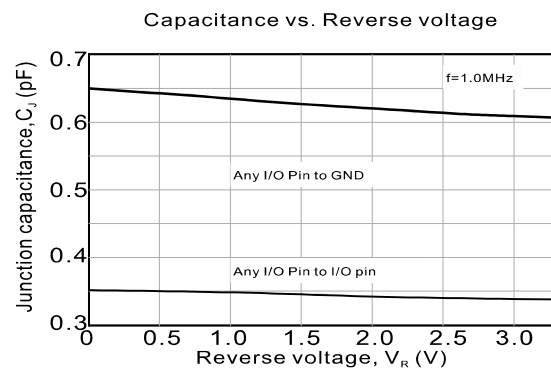
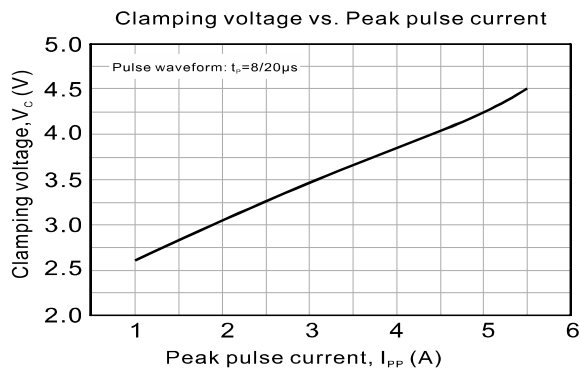
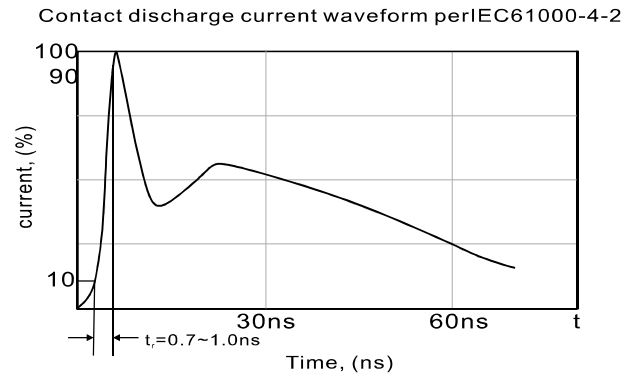
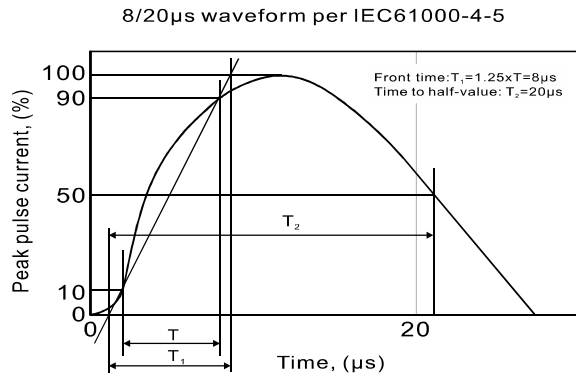
Parameter	Symbol	Value	Unit
Peak pulse current (8/20 μs)	P_{PP}	33	W
Peak pulse current (8/20 μs)	I_{PP}	5.5	A
ESD per IEC61000-4-2 (Air)	V_{ESD}	± 20	kV
ESD per IEC61000-4-2 (Contact)		± 20	
Operating temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse working voltage	Any I/O pin to GND	V_{RWM}			5	V
Reverse leakage current	$V_{RWM}=5$, Any I/O pin to GND	I_R			0.5	μA
Reverse breakdown voltage	$I_T=1\text{mA}$, Any I/O pin to GND	V_{BR}	6			V
Clamping voltage	$I_{PP} = 1\text{A}$ (8x20 μs pulse), Any I/O pin to GND	V_C		3.5		V
	$I_{PP} = 5.5\text{A}$ (8x20 μs pulse), Any I/O pin to GND			6		
Junction Capacitance	$V_R=0\text{V}$, $f=1.0\text{MHz}$, Any I/O pin to GND	C_J		0.65	0.8	pF
	$V_R=0\text{V}$, $f=1.0\text{MHz}$, Any I/O pin to GND			0.35	0.45	

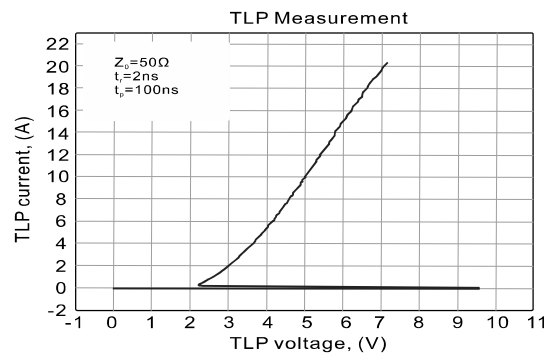
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Rating and characteristic curves



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Rating and characteristic curves



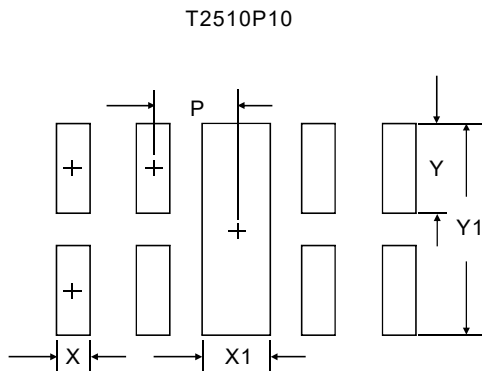
Pinning information

Pin	Simplified outline	Circuit Diagram
Pin 1,2,4,5 I/O Pin 3,8 GND Pin 6,7,9,10 NC	Top view Bottom view	

Marking

Type number	Marking code
LL054BT2510I	0524P

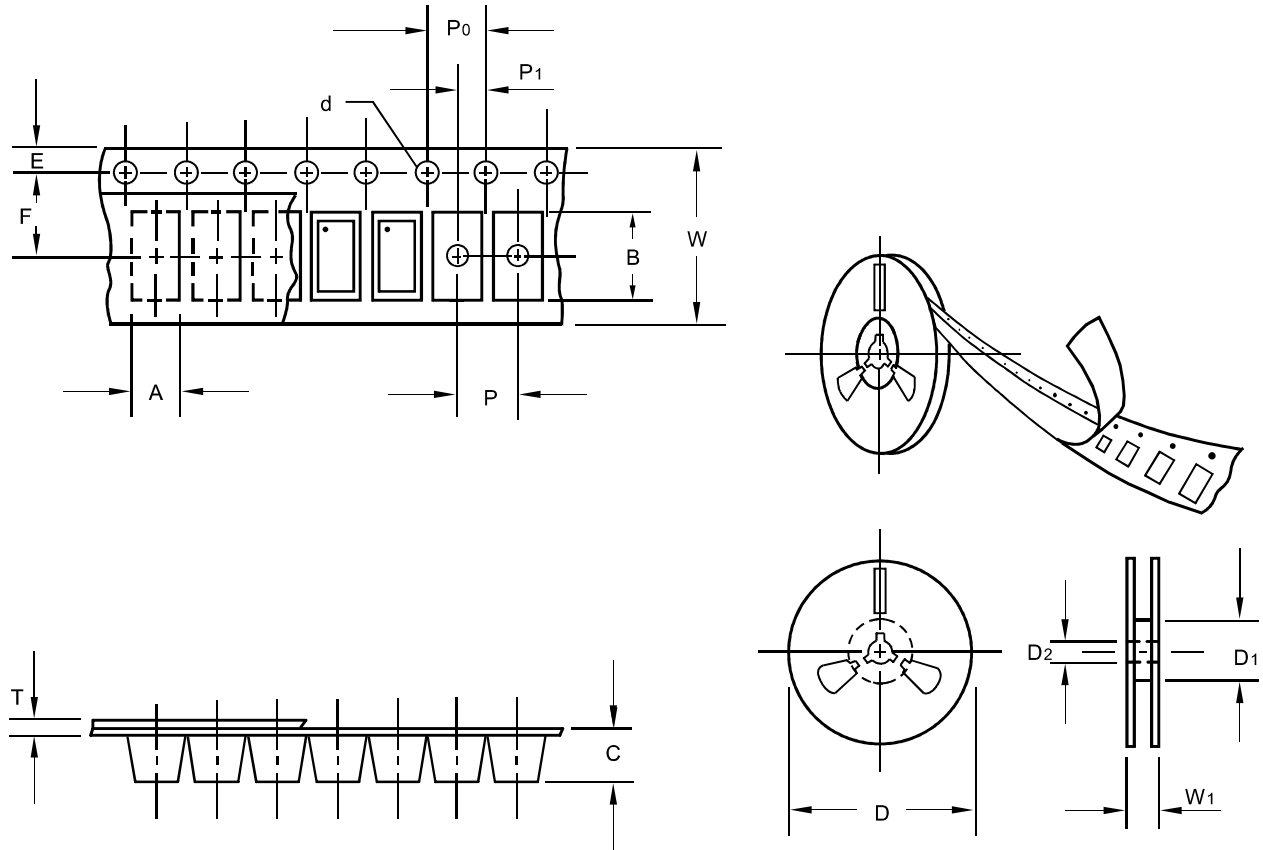
Suggested solder pad layout



DIMENSIONS		
DIM	INCHES	MILLIMETERS
P	0.020	0.50
X	0.008	0.20
X1	0.016	0.40
Y	0.024	0.60
Y1	0.056	1.40

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Packing information



unit:mm

Item	Symbol	Tolerance	T2510P10
Carrier width	A	0.1	1.23
Carrier length	B	0.1	2.70
Carrier depth	C	0.1	0.70
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D2	2.0	178.00
7" Reel inner diameter	D1	min	60.00
Feed hole diameter	D2	0.2	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.00

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

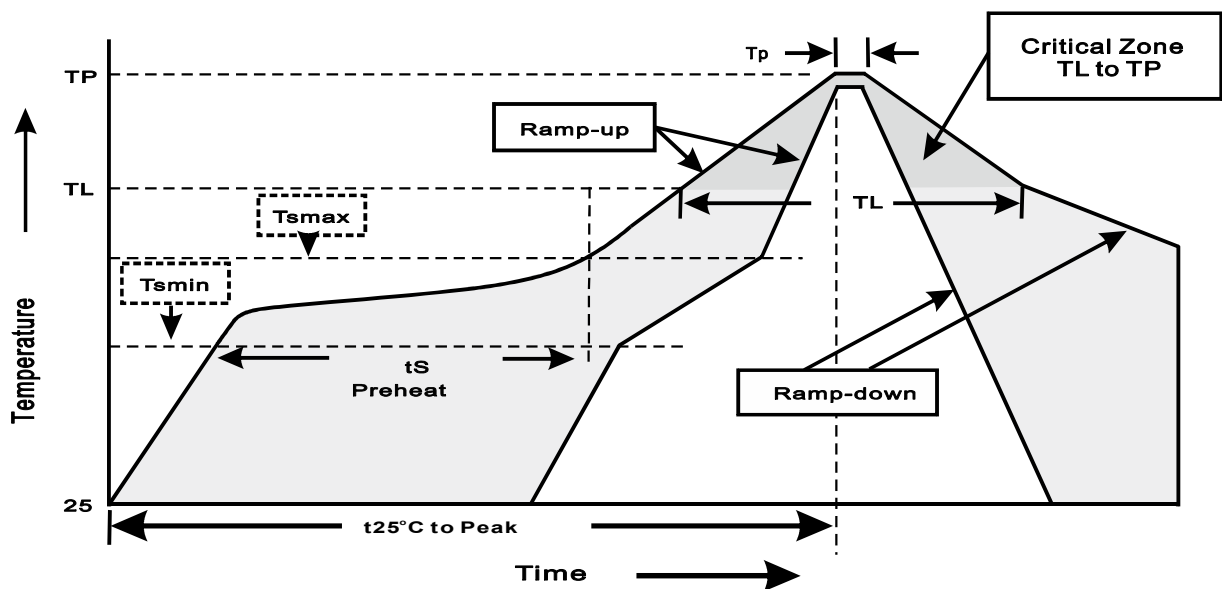
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)
T2510P10	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{Smin}) -Temperature Max(T _{Smax}) -Time(min to max)(t _S)	150°C 200°C 60~120sec
T _{Smax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes