

Features

- ❑ IEC61000-4-2 (ESD) +/-30kV (air),
+/-30KV(contact)
- IEC61000-4-4 (EFT) 40A (5/50 ns)
- IEC61000-4-5 (EOS) (1.2/50uS, 8/20uS)
- ❑ 350 Watts Peak Pulse Power per (tp=8/20us)
- ❑ Protects one I/O line (bidirectional)
- ❑ Working voltages : 5V,8V,12V,15V,18V,24V
36V
- ❑ Low leakage current
- ❑ ROHS compliant

Description

The TSxx01LBX Series is designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium. This series has been specifically designed to protect sensitive components which are connected to power data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

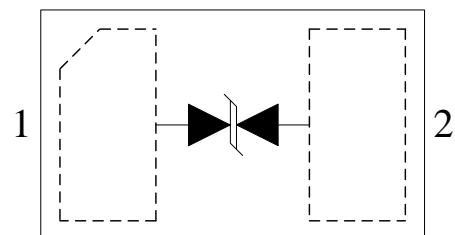
Applications

- ❑ Cell Phone Handsets and Accessories
- ❑ Microprocessor based equipment
- ❑ Personal Digital Assistants (PDA's)
- ❑ Notebooks, Desktops, and Servers
- ❑ Portable Instrumentation
- ❑ Networking and Telecom
- ❑ Serial and Parallel Ports.
- ❑ Peripherals

Mechanical Characteristics

- ❑ DFN1.0*0.6-2L package
- ❑ Flammability Rating: UL 94V-0
- ❑ Packaging: Tape and Reel
- ❑ High temperature soldering guaranteed:260°C/10s
- ❑ Reel size: 7 inch

Pin Configuration



DFN1.0*0.6-2L
(Top View)



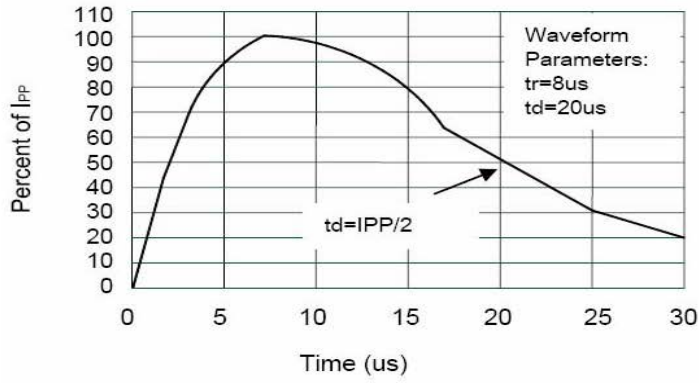
Absolute Maximum Rating

Symbol	Parameter	Value	Units
V _{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	kV
P _{PP}	Peak Pulse Power (8/20μs)	350	W
T _{OPT}	Operating Temperature	-55/+150	°C
T _{STG}	Storage Temperature	-55/+150	°C
T _L	Lead Soldering Temperature	260 (10 sec.)	°C

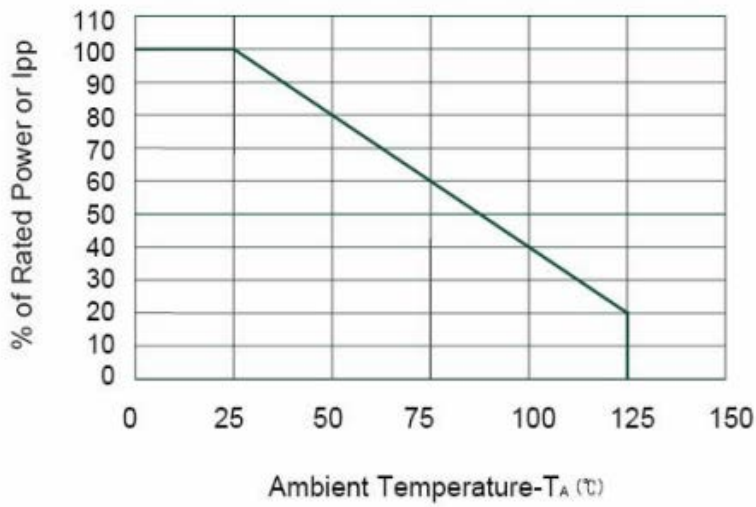
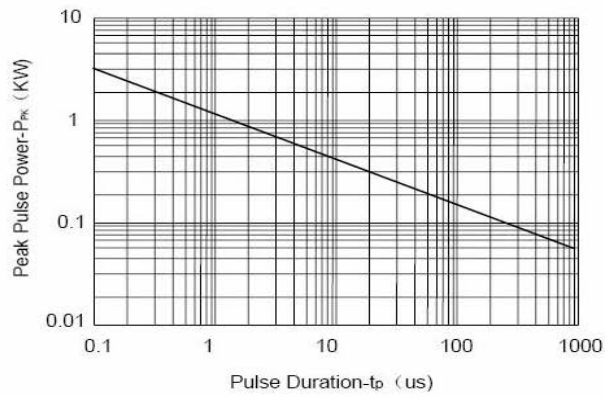
Electrical Characteristics (T = 25°C)

PART NUMBER	V _{RWM}	V _B	I _T	V _{C@1A}	V _C		I _R	C _T	DEVICE MARKING
	(V) (max.)	(V) (min.)	(mA)	(V) (max.)	(max.)	(@A)	(μA) (max.)	(pF) (max.)	
TS0501LBX	5	6.0	1	10	24	19	0.1	80	5L
TS0801LBX	8	9.2	1	15	28	15	0.1	70	8L
TS1201LBX	12	13.3	1	19	32	12	0.1	60	CL
TS1501LBX	15	16.7	1	24	36	10	0.1	50	FL
TS1801LBX	18	20.4	1	28	45	8	0.1	40	IL
TS2401LBX	24	26.7	1	36	50	5	0.1	30	OL
TS3601LBX	36	40.0	1	50	60	4	0.1	20	KL

Typical Characteristics



Pulse Waveform



Power Derating Curve

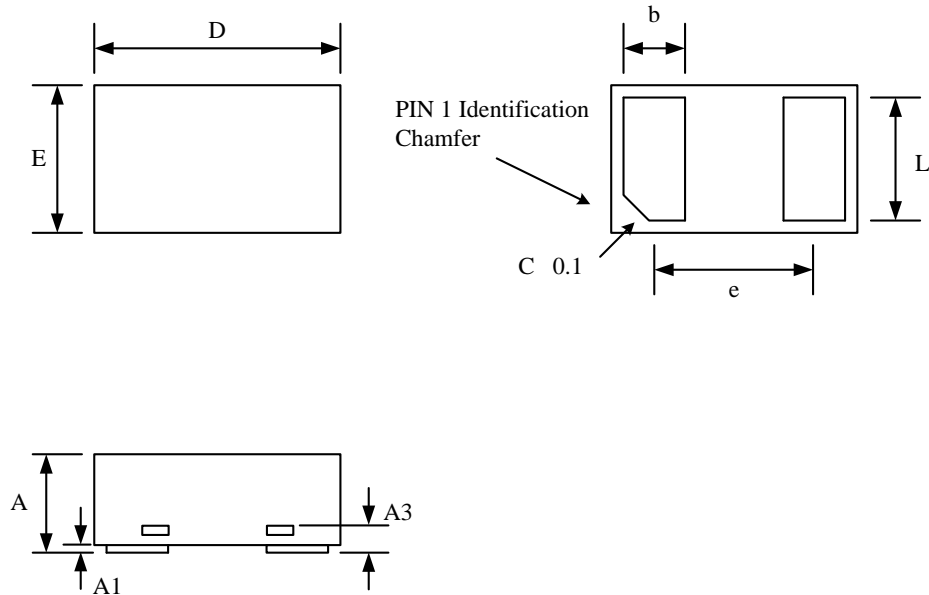


IEC61000-4-5 EOS Test (1.2/50uS, 8/20uS)

TS0501LBX	TS0801LBX	TS1201LBX																																																																		
<table border="1"><caption>Approximate data for TS0501LBX</caption><thead><tr><th>Maximum Peak Pulse Current (A)</th><th>Clamping Voltage (V)</th></tr></thead><tbody><tr><td>0</td><td>8.5</td></tr><tr><td>2</td><td>9.0</td></tr><tr><td>4</td><td>9.5</td></tr><tr><td>6</td><td>10.0</td></tr><tr><td>8</td><td>10.5</td></tr><tr><td>10</td><td>11.0</td></tr><tr><td>12</td><td>11.5</td></tr><tr><td>14</td><td>12.0</td></tr><tr><td>16</td><td>12.5</td></tr><tr><td>18</td><td>13.0</td></tr><tr><td>20</td><td>14.0</td></tr></tbody></table>	Maximum Peak Pulse Current (A)	Clamping Voltage (V)	0	8.5	2	9.0	4	9.5	6	10.0	8	10.5	10	11.0	12	11.5	14	12.0	16	12.5	18	13.0	20	14.0	<table border="1"><caption>Approximate data for TS0801LBX</caption><thead><tr><th>Maximum Peak Pulse Current (A)</th><th>Clamping Voltage (V)</th></tr></thead><tbody><tr><td>0</td><td>12.0</td></tr><tr><td>2</td><td>13.0</td></tr><tr><td>4</td><td>14.0</td></tr><tr><td>6</td><td>15.0</td></tr><tr><td>8</td><td>16.0</td></tr><tr><td>10</td><td>17.0</td></tr><tr><td>12</td><td>18.0</td></tr><tr><td>14</td><td>19.0</td></tr><tr><td>16</td><td>20.0</td></tr><tr><td>18</td><td>20.0</td></tr><tr><td>20</td><td>20.0</td></tr></tbody></table>	Maximum Peak Pulse Current (A)	Clamping Voltage (V)	0	12.0	2	13.0	4	14.0	6	15.0	8	16.0	10	17.0	12	18.0	14	19.0	16	20.0	18	20.0	20	20.0	<table border="1"><caption>Approximate data for TS1201LBX</caption><thead><tr><th>Maximum Peak Pulse Current (A)</th><th>Clamping Voltage (V)</th></tr></thead><tbody><tr><td>0</td><td>16.0</td></tr><tr><td>2</td><td>17.0</td></tr><tr><td>4</td><td>18.0</td></tr><tr><td>6</td><td>19.0</td></tr><tr><td>8</td><td>20.0</td></tr><tr><td>10</td><td>21.0</td></tr><tr><td>12</td><td>22.0</td></tr><tr><td>14</td><td>24.0</td></tr></tbody></table>	Maximum Peak Pulse Current (A)	Clamping Voltage (V)	0	16.0	2	17.0	4	18.0	6	19.0	8	20.0	10	21.0	12	22.0	14	24.0
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<table border="1"><caption>Approximate data for TS3601LBX</caption><thead><tr><th>Maximum Peak Pulse Current (A)</th><th>Clamping Voltage (V)</th></tr></thead><tbody><tr><td>1</td><td>50.0</td></tr><tr><td>2</td><td>55.0</td></tr><tr><td>3</td><td>58.0</td></tr><tr><td>4</td><td>62.0</td></tr><tr><td>5</td><td>65.0</td></tr></tbody></table>	Maximum Peak Pulse Current (A)	Clamping Voltage (V)	1	50.0	2	55.0	3	58.0	4	62.0	5	65.0																																																								
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Package Outline Dimensions

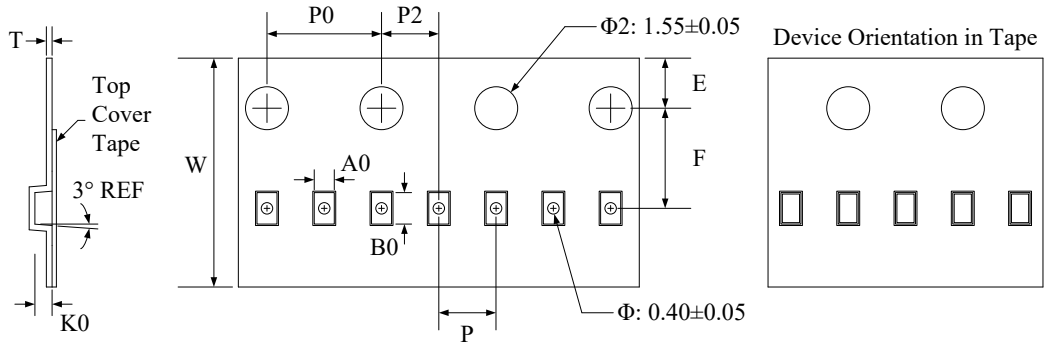
- DFN1.0*0.6-2L Package
- MSL-1



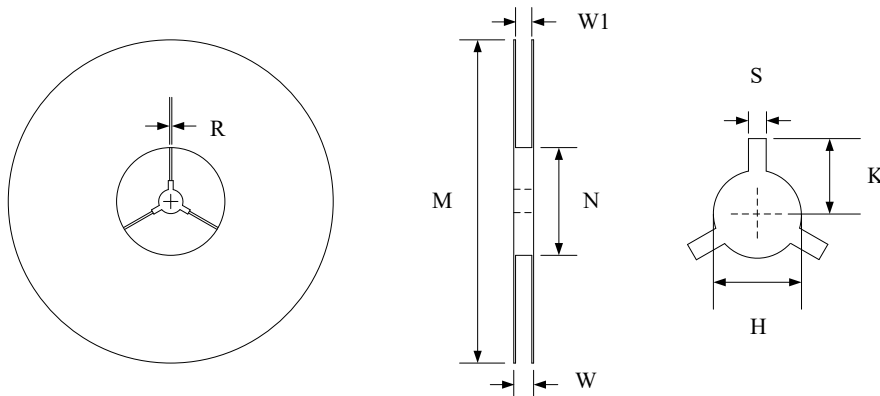
Package Dimensions (Controlling dimensions are in millimeters)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Minimum	Maximum	Minimum	Maximum
A	0.400	0.550	0.016	0.022
A1	0.000	0.050	0.000	0.002
A3	0.125 REF		0.005 REF	
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
b	0.200	0.300	0.008	0.012
e	0.650 BSC		0.026 BSC	
L	0.450	0.550	0.018	0.022

Tape and Reel Specification



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05



Symbol	Reel Size	M	N	W	W1	H	S	K	R
Dimensions (mm)	Φ178	178.0±1.0	60.0±1.0	11.5±0.5	9.0±0.5	13.0±0.5	2.0±0.1	11.0±0.2	1.0±0.05

Ordering Information

Part Number	Qty per Reel	Reel Size
TSxx01LBX	10,000	7 inch

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[P6KE13CA](#) [P6KE43CA](#) [P6KE6.8CA](#) [P6KE8.2](#) [P6SMBJ20CA](#) [JANTX1N6072A](#) [SR2835ESKG](#) [SA90CA](#)