L03AUT1006

List

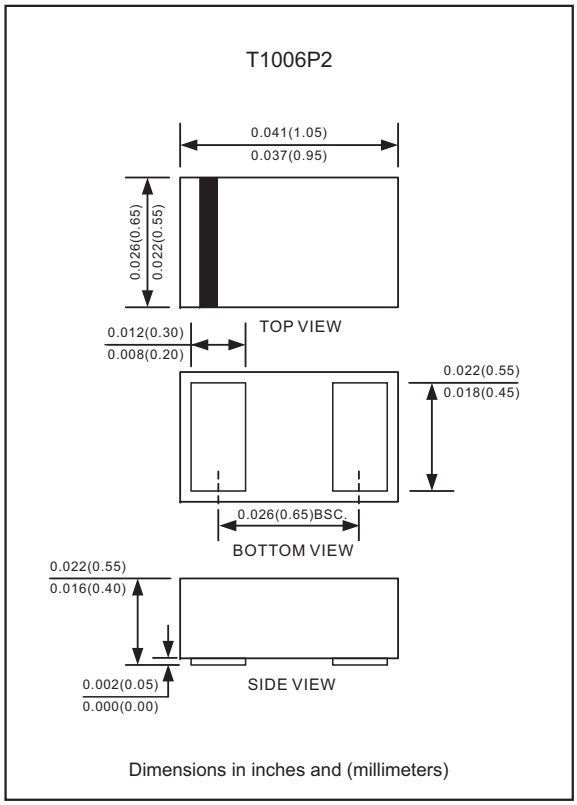
L03AUT1006

Low Capacitance TVS Uni-Directional For ESD Protection Diode 3.3V

Features

- Protects one data line
- Low capacitance : 1.5pF (Typical)
- Low leakage current : 0.01μA @V_{RWM} (Typical)
- Low operating and clamping voltage
- Each I/O pin can withstand over 1000 ESD Strikes for ±8kV contact discharge
- Provide transient protection:
  IEC 61000-4-2 (ESD) ±30kV(Air)
  ±30kV(Contact)
  IEC 61000-4-4 (EFT) 40A (5/50ns)
  IEC 61000-4-5 (Surge) 10A (8/20μs)
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex.L03AUT1006-H

Package outline



Dimensions in inches and (millimeters)

Applications

- Desktops, servers and notebooks
- Cellular phones
- Portable instruments
- Analog inputs

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic,T1006P2
- Mounting Position : Any
- Weight : Approximated 1.00 mg

Maximum ratings (at T_A=25°C unless otherwise noted)

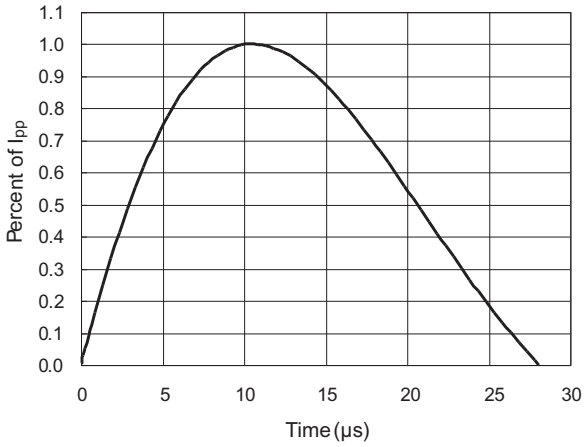
Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±30 ±30	kV
Peak pulse current (8/20μs)	I_{PP}	10	A
Peak pulse power (8/20μs)	P_{PP}	100	W
Operating temperature range	T_{OPT}	-45 to +85	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical Characteristics (at T_A=25°C unless otherwise noted)

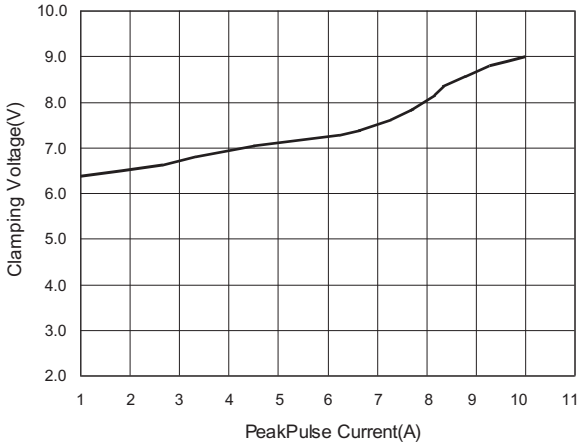
Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Nominal reverse working voltage		V_{RWM}			3.3	V
Trigger voltage	It1=1μA	V_{t1}	4.0		7.0	V
Holding voltage	Ih=20mA	V_h	3.0		5.0	V
Reverse leakage current	V_{RWM}=3.3V, T_J = 25°C	I_R		0.01	0.1	μA
Clamping voltage	I_{PP}=1A, tp=8/20μs	V_C			6.5	V
	I_{PP}=10A, tp=8/20μs				10.0	
Parasitic capacitance	V_R=3.3V, f=1MHz	C_J		1.5	2.0	pF

Rating and characteristic curves(L03AUT1006)

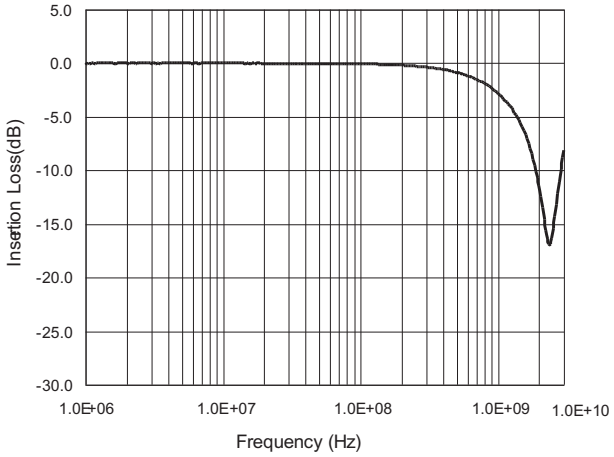
8/20μs Pulse Waveform



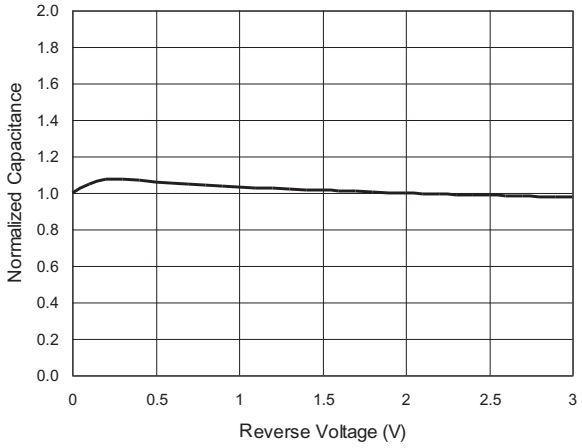
Clamping Volt age V_C vs. Current I_{PP}



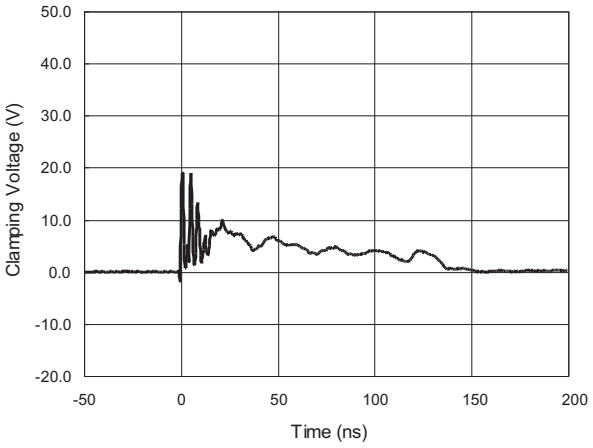
Insertion Loss S21



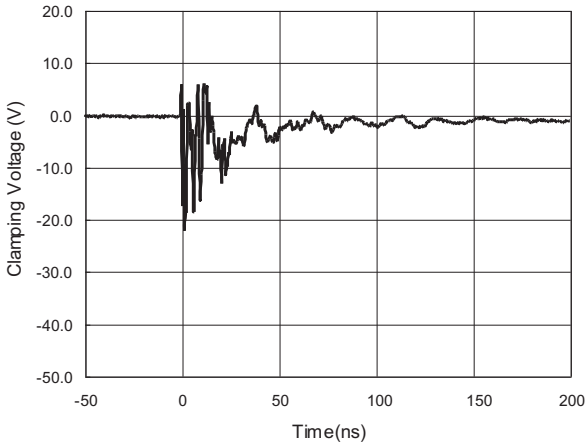
Normalized Capacitance vs. Voltage



ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)



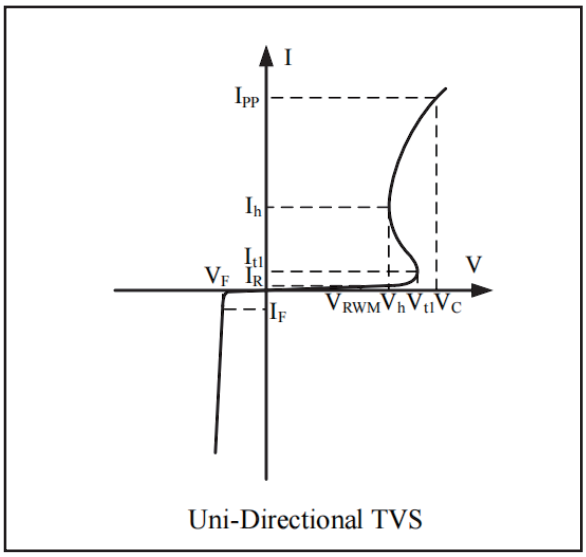
ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



L03AUT1006

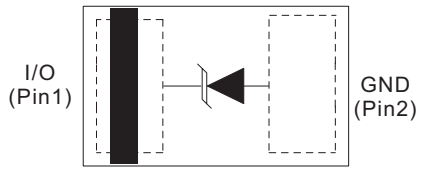
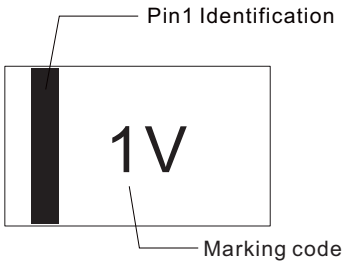
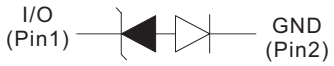
Electrical Parameters (T_A=25℃)

Symbol	Parameter
V_{RWM}	Nominal reverse working voltage
I_R	Reverse leakage current @VRWM
V_{t1}	Trigger voltage
I_{t1}	Trigger current @V_{t1}
V_h	Holding voltage
I_h	Holding current @V_h
V_C	Clamping voltage @I_{PP}
V_{CR}	Reverse clamping voltage @I_{PP}
I_{PP}	Maximum peak pulse current
C_{ESD}	Parasitic capacitance

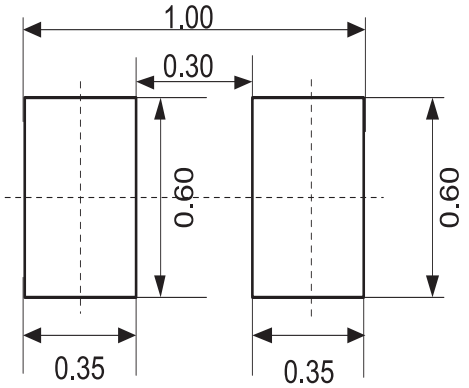


Uni-Directional TVS

Pinning information

Pin	Marking Code	Symbol
		

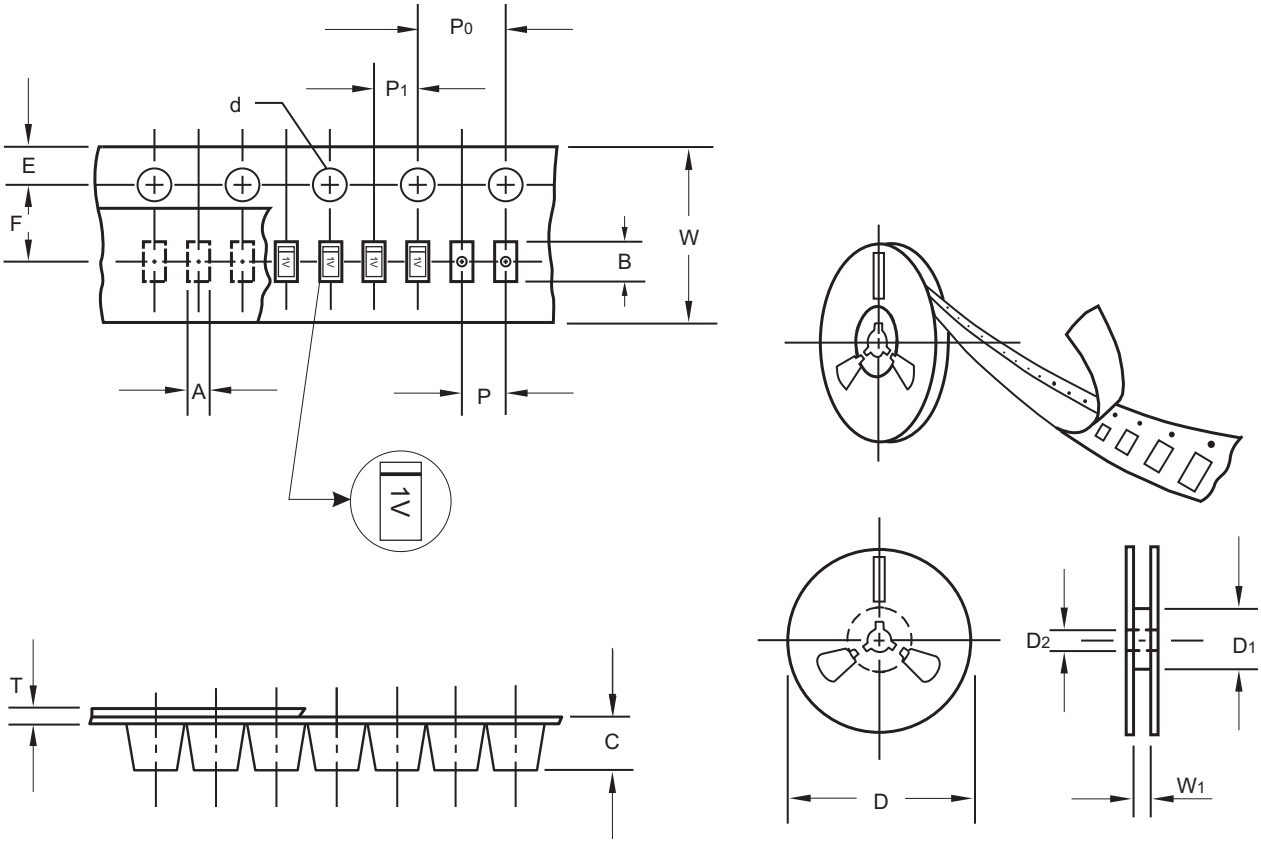
Suggested solder pad layout



Dimensions in millimeters

L03AUT1006

Packing information



unit:mm

Item	Symbol	Tolerance	T1006P2
Carrier width	A	0.1	0.66
Carrier length	B	0.1	1.15
Carrier depth	C	0.1	0.66
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D_1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	55.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	2.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W_1	1.0	9.50

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

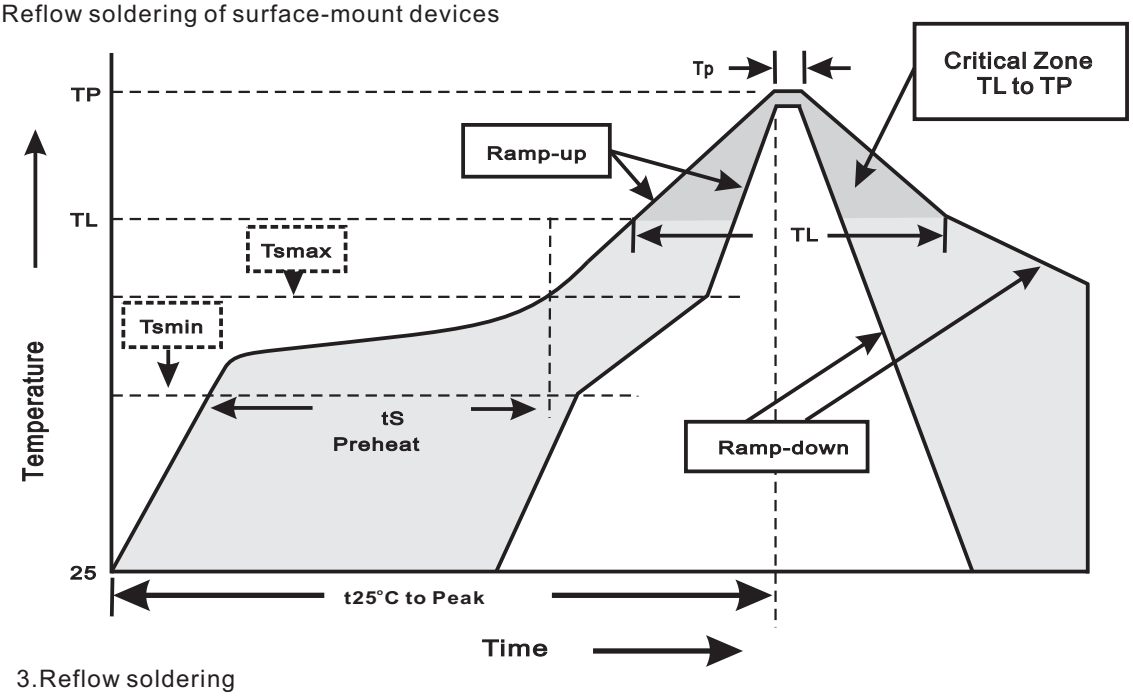
L03AUT1006

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)	APPROX. GROSS WEIGHT (kg)
T1006P2	7"	10,000	2.0	100,000	183*123*183	178	382*257*387	800,000	15.0

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(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax 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

L03AUT1006

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_{BR}=V_{BR} MIN*80% at T_J=85°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	15P_{SIG} at T_A=121°C for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
6. Humidity	at T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
7. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031