N24UT2020P3B

List

N24UT2020P3B

Surface Mount Uni-Directional TVS For ESD Protection Diode : 24V

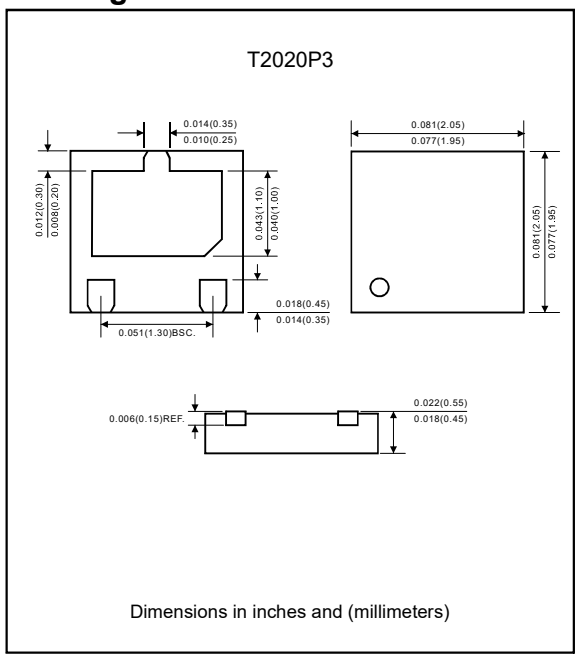
Features

- Low leakage current : 10nA @ V_{RWM}
- 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) 80A(5/50ns).
  IEC 61000-4-5 (Surge) 120A (8/20us).
- RoHS complinat.
- Suffix "-H" indicates Halogen-free part, ex.N24UT2020P3B-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, T2020P3
- Terminals : Solder plated, solder able per MIL-STD-750, Method 2026.
- Mounting Position : Any
- Weight : Approximated 0.005 gram

Package outline



Dimensions in inches and (millimeters)

Absolute maximum ratings (At T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak pulse power (t_P=8/20μs)	P_{PP}	6000	W
Electrostatic discharge voltage (IEC61000-4-2 Contact & Air)	V_{ESD}	±30	KV
Peak pulse current (t_P=8/20μs, IEC61000-4-5)	I_{PP}	120	A
Operating temperature	T_{OPT}	+150	℃
Storage temperature	T_{STG}	-55 to +150	℃

Electrical characteristics (At T_A=25°C unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			24	V
Breakdown voltage	I_T=1mA	V_{BR}	26			V
Reverse leakage current	V_{RWM}=24V	I_R			1.0	μA
Forward voltage	I_F=1mA	V_F			0.8	V
Clamping voltage	I_{PP}=50A, t_p=8/20μs	V_C			50	V
	I_{PP}=120A, t_p=8/20μs				60	
Junction capacitance	V_R=0V, f=1MHz	C_J		750		pF

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Rating and characteristic curves

FIG.1: Pulse derating curve

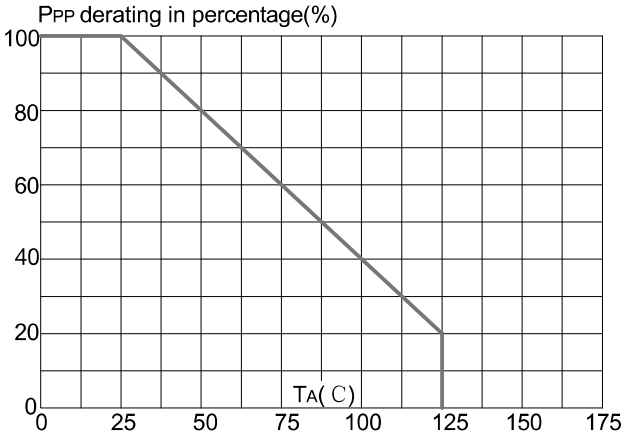


FIG.2: ESD clamping(30kV contact)

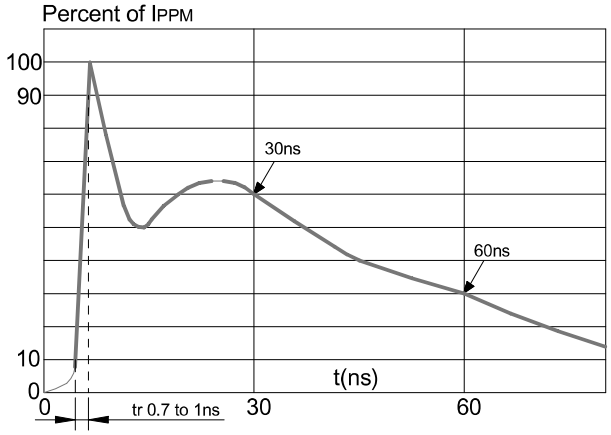


FIG.3:Clamping voltage vs.peak pulse current

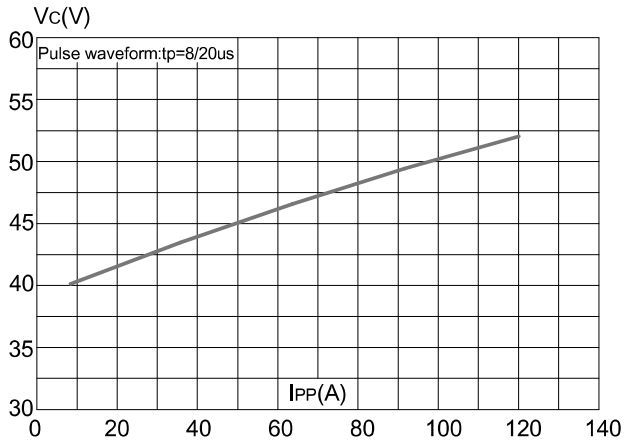
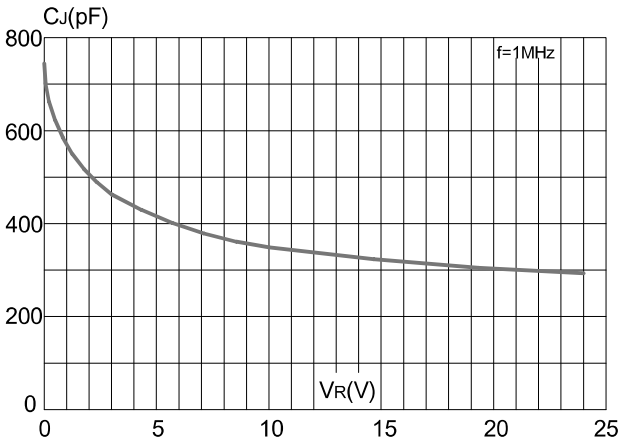


FIG.4:Capacitance vs.reverse voltage



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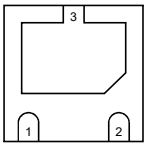
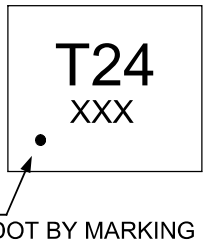
Pinning information

Pin	Pin Schematic	Circuit Daiagram
Pin 1, 2 : Anode Pin 3 : Cathode	 Transparent Top View	

Marking

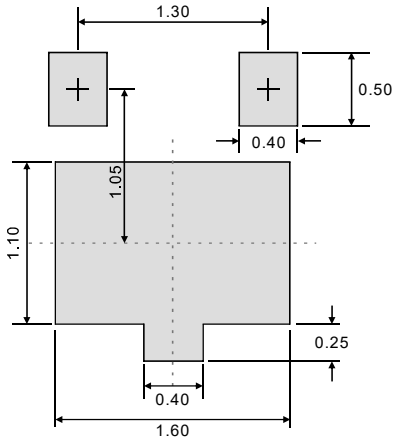


Note:

(1) "T24" is part number, fixed.

(2) "XXX" is the linternal code.

Suggested solder pad layout



Dimensions in millimeters

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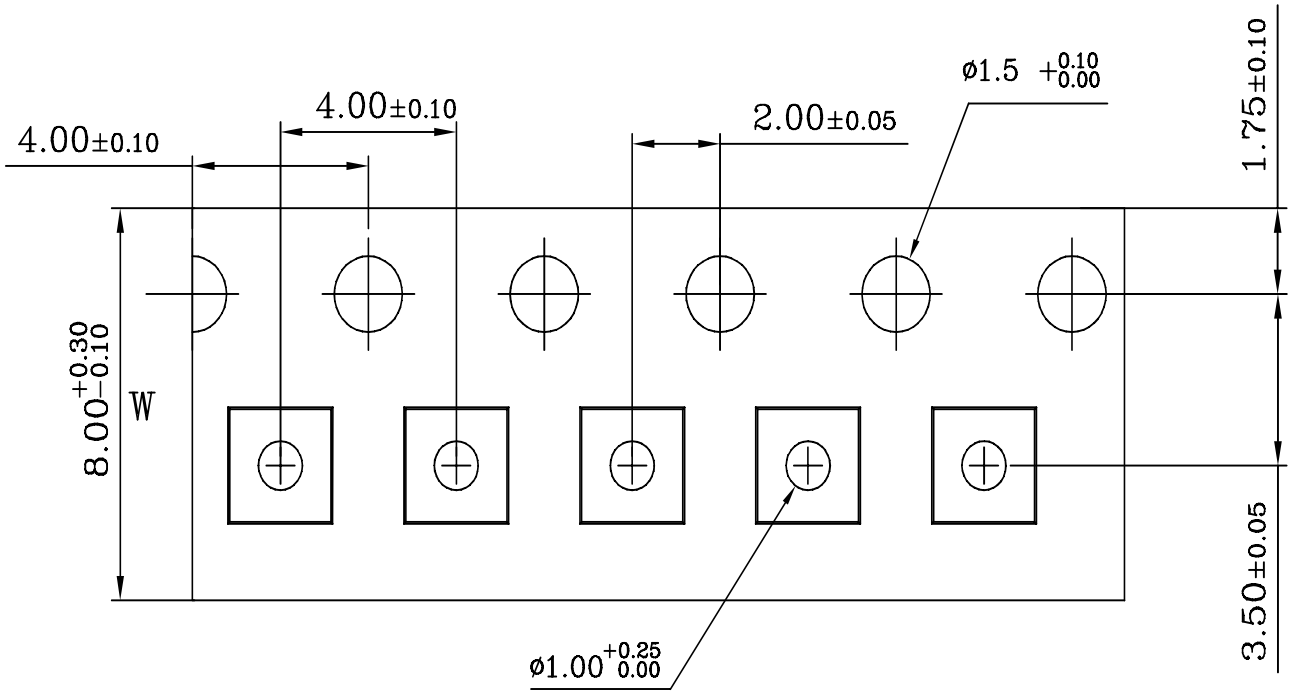
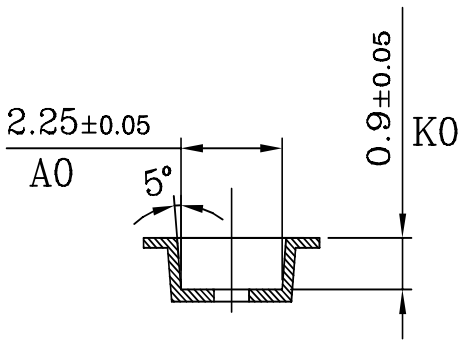
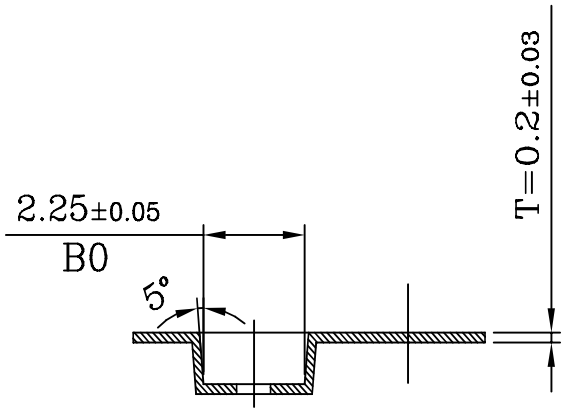
Packing information







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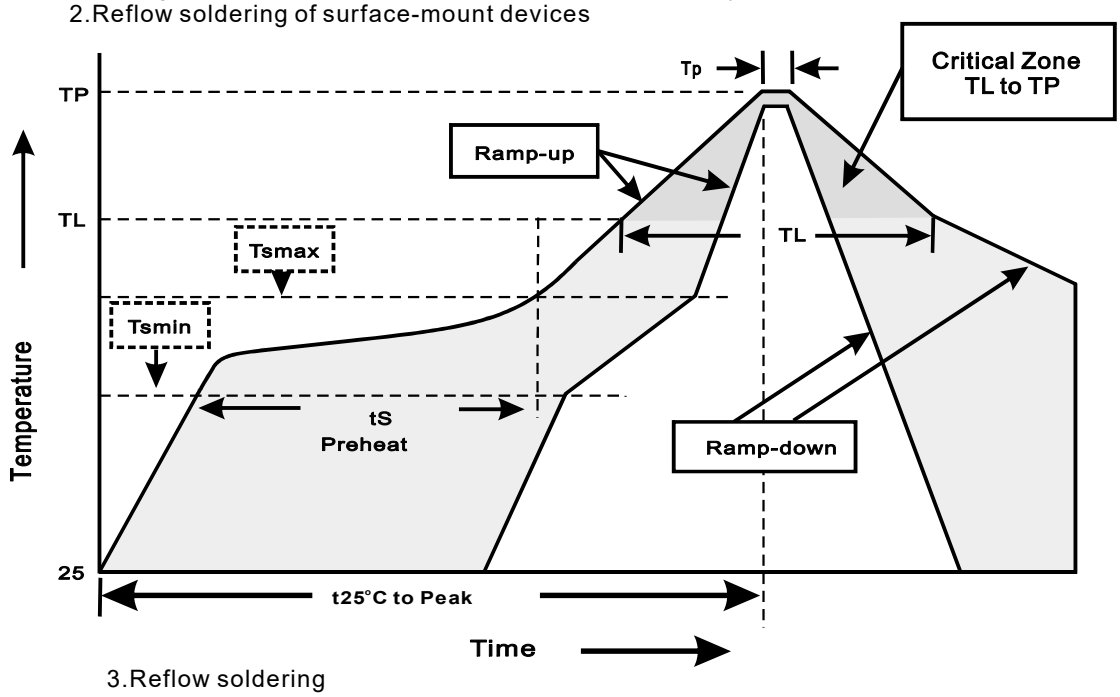
Suggested thermal profiles for soldering processes

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