

KLFM0540-T1006-Q1

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500mA Surface Mount Reverse Voltage : 40V

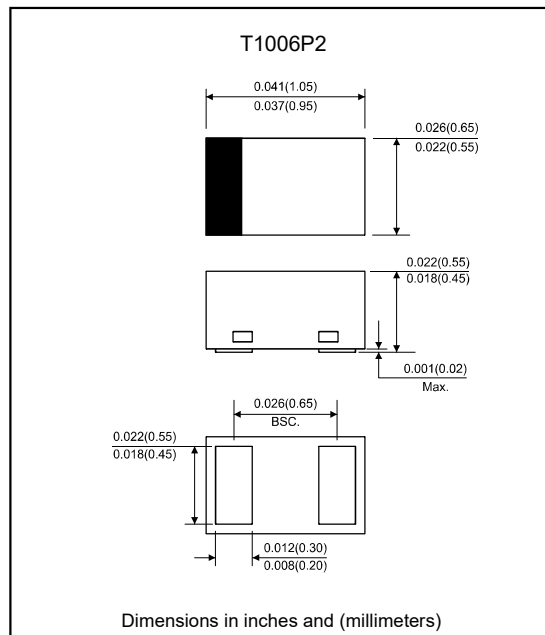
Features

- Low forward voltage.
- Designed for mounting on small surface .
- Extremely thin package.
- Majority carrier conduction.
- Human body model (ESD) : 8KV.
- Machine model : 400V.
- AEC-Q101 Qualified.
- We declare that the material of product compliance with RoHs requirements.
- Suffix "-H" indicates Halogen-free parts, ex.KLFM0540-T1006-Q1-H.

Mechanical data

- Case : Molded plastic, T1006P2.
- Terminal : Sn / Au plated, solder able per MIL-STD-750D,method 2026.
- Mounting Position : Any.
- Weight : 0.001gram (approx).

Package outline



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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RWM}	40	V
Reverse voltage	V_R	40	V
Average rectified output current	I_O	500	mA
Non-repetitive peak forward surge current @ $t=8.3\text{ms}$	I_{FSM}	4.5	A
Power dissipation (Note 1)	P_D	500	mW
Typical resistance form junction to ambient	$R_{\theta JA}$	200	$^{\circ}\text{C/W}$
Operating junction temperature	T_J	-55 to +150	$^{\circ}\text{C}$
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
Forward voltage	$I_F = 100\text{mA}$	V_F		0.32	0.36	V
	$I_F = 500\text{mA}$			0.44	0.48	
Reverse current	$V_R = 10\text{V}$	I_R			15	μA
	$V_R = 40\text{V}$				40	
Capacitance between terminals	$V_R = 0\text{V}, f = 1\text{MHz}$	C_T		105		pF

Notes : Device mounted on a 20mm x 20mm ceramic PCB which spread 2 ounces of copper.

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Rating and characteristic curves

Fig.1 - Forward Characteristics

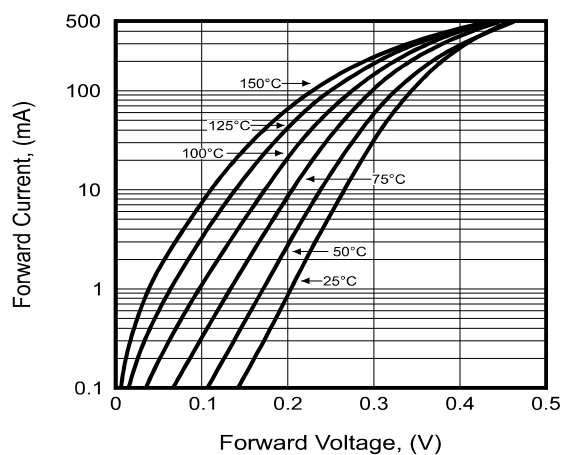


Fig.2 - Reverse Characteristics

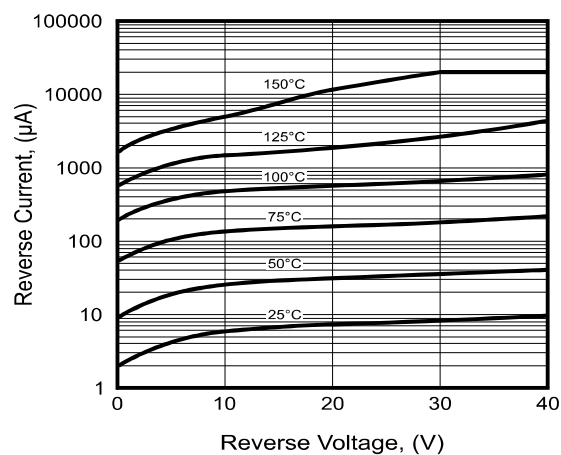


Fig.3 - Typical Capacitance Between Terminals Characteristics

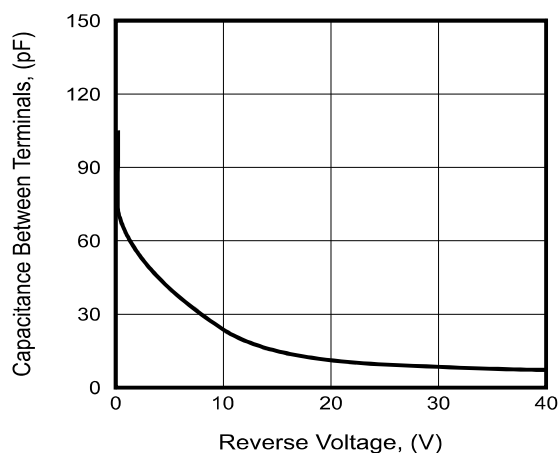


Fig.4 - Forward Current Derating Curve

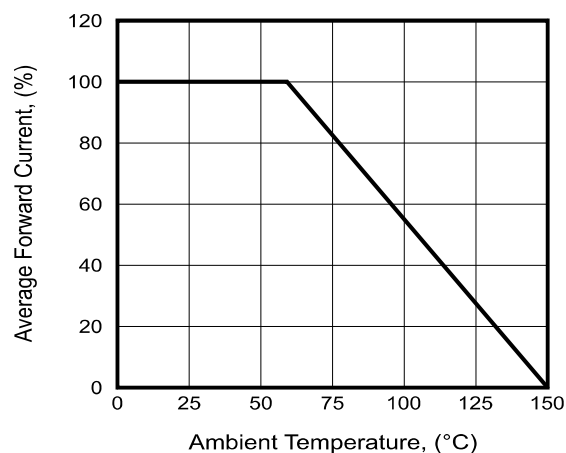
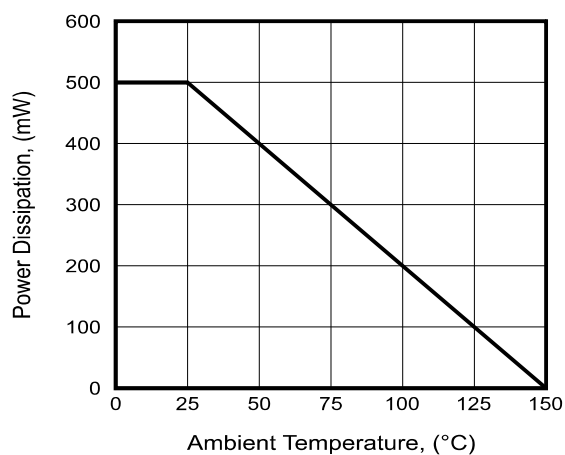


Fig.5 - Power Derating Curve

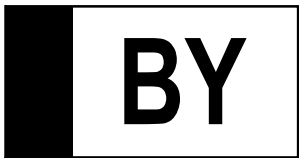


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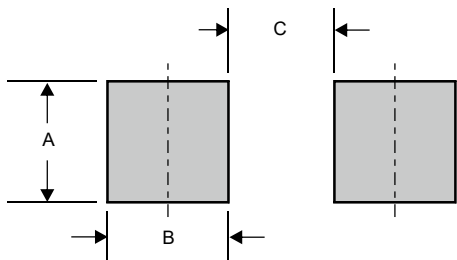
Pinning information

Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Anode	1  2	1  2

Marking



Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
T1006P2	0.024 (0.60)	0.020 (0.50)	0.012 (0.30)

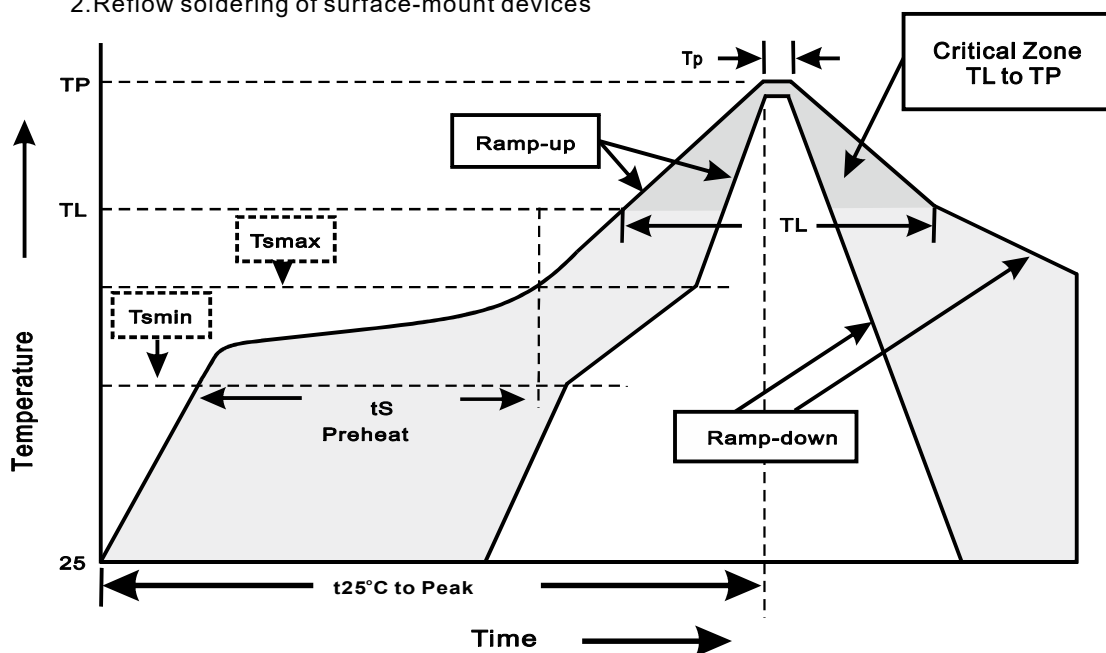
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Reel packing

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)	APPROX. GROSS WEIGHT (kg)
T1006P2	7"	5,000	4.0	50,000	183*123*183	178	382*257*387	400,000	10.2

Suggested thermal profiles for soldering processes

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

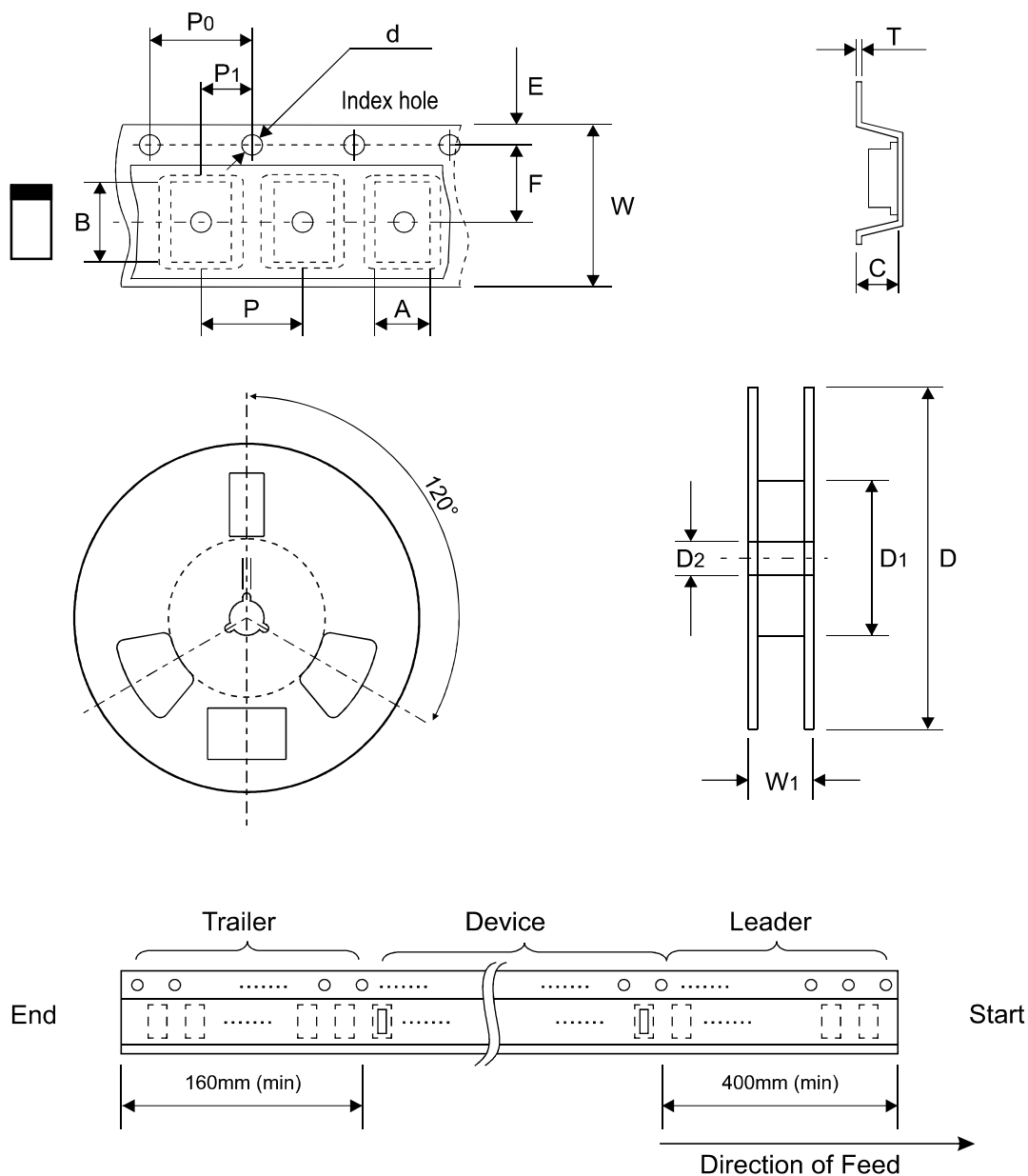


3.Reflow soldering

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

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Packing information



T1006P2	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	0.78 ± 0.05	1.25 ± 0.05	0.65 ± 0.05	$1.50 + 0.10 - 0.00$	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.031 ± 0.002	0.049 ± 0.002	0.026 ± 0.002	$0.059 + 0.004 - 0.000$	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

T1006P2	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	$0.20 + 0.03 - 0.05$	8.00 ± 0.20	$12.00 + 0.50 - 0.00$
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	$0.008 + 0.001 - 0.002$	0.315 ± 0.008	$0.472 + 0.020 - 0.000$

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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	$V_{BR} = V_{BR} \text{ Min} * 80\%$ at $T_J = 150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	15P _{SIG} at $T_A = 121^\circ\text{C}$ 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 $T_A = 85^\circ\text{C}$, 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