

KLFM140-T1006

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KLFM140-T1006

1.0A Surface Mount Low Leakage Schottky Barrier Rectifiers 40V

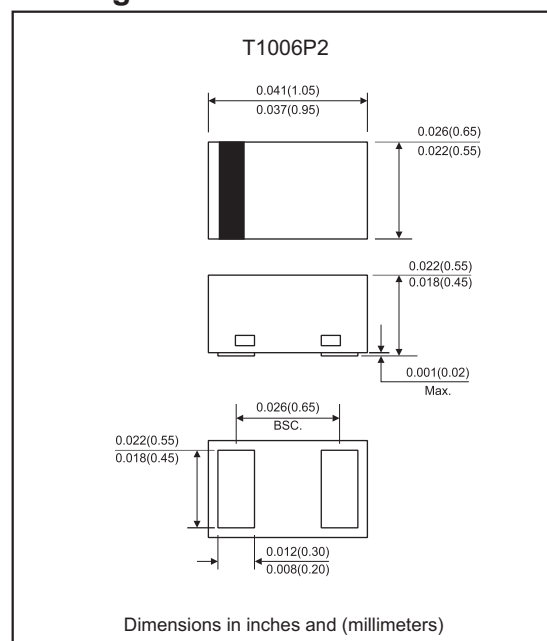
Features

- Low forward voltage
- Designed for mounting on small surface
- Extremely thin package
- Majority carrier conduction
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. KLFM140-T1006-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, T1006P2
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.001 gram

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
Maximum reverse voltage	V_{R}	40	V
Average forward rectified current	I_{O}	1.0	A
Non-repetitive peak forward surge current 8.3ms single half sine-wave	I_{FSM}	9	A
Power dissipation (Note 1)	P_{D}	500	mW
Typical resistance junction to ambient	R_{BJA}	181	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	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	Typ.	Max.	Unit
Forward voltage	$I_{\text{F}}=100\text{mA}$	V_{F}	0.31	0.36	V
	$I_{\text{F}}=500\text{mA}$		0.41	0.46	
	$I_{\text{F}}=1000\text{mA}$		0.50	0.56	
Reverse current	$V_{\text{R}}=10\text{V}$	I_{R}		15	μA
	$V_{\text{R}}=40\text{V}$			40	
Capacitance between terminals	$V_{\text{R}}=0\text{V}$, $f=1\text{MHz}$	C_{T}	125		pF

Note 1: Device mounted on a 1 in². ceramic PCB which spread 2 ounces of copper.

Rating and characteristic curves

Fig.1 - Forward Characteristics

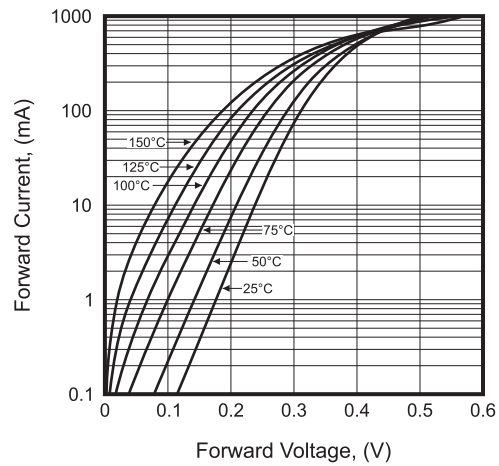


Fig.2 - Reverse Characteristics

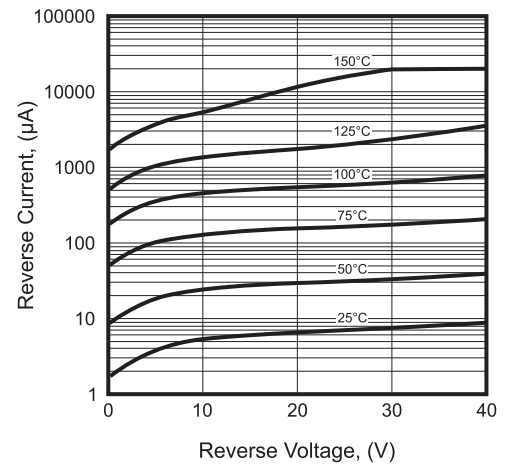


Fig.3 - Typical Capacitance Between Terminals Characteristics

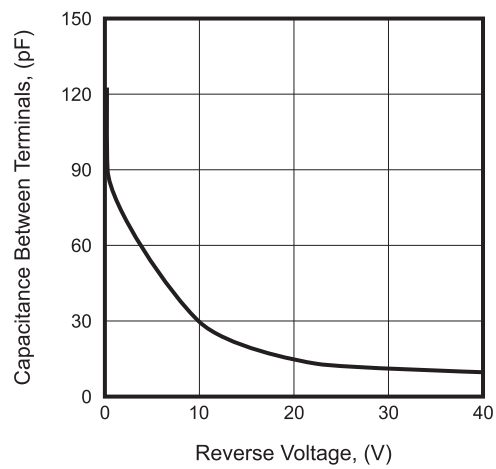
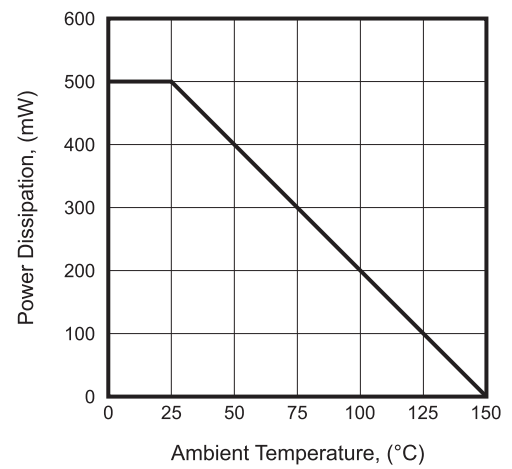


Fig.4 - Power Derating Curve



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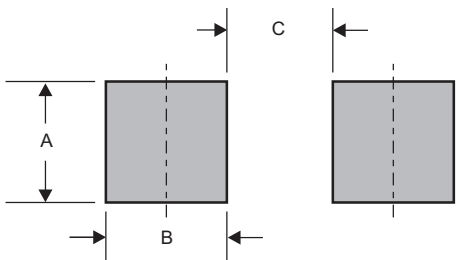
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
KLFM140-T1006	14L

Suggested solder pad layout

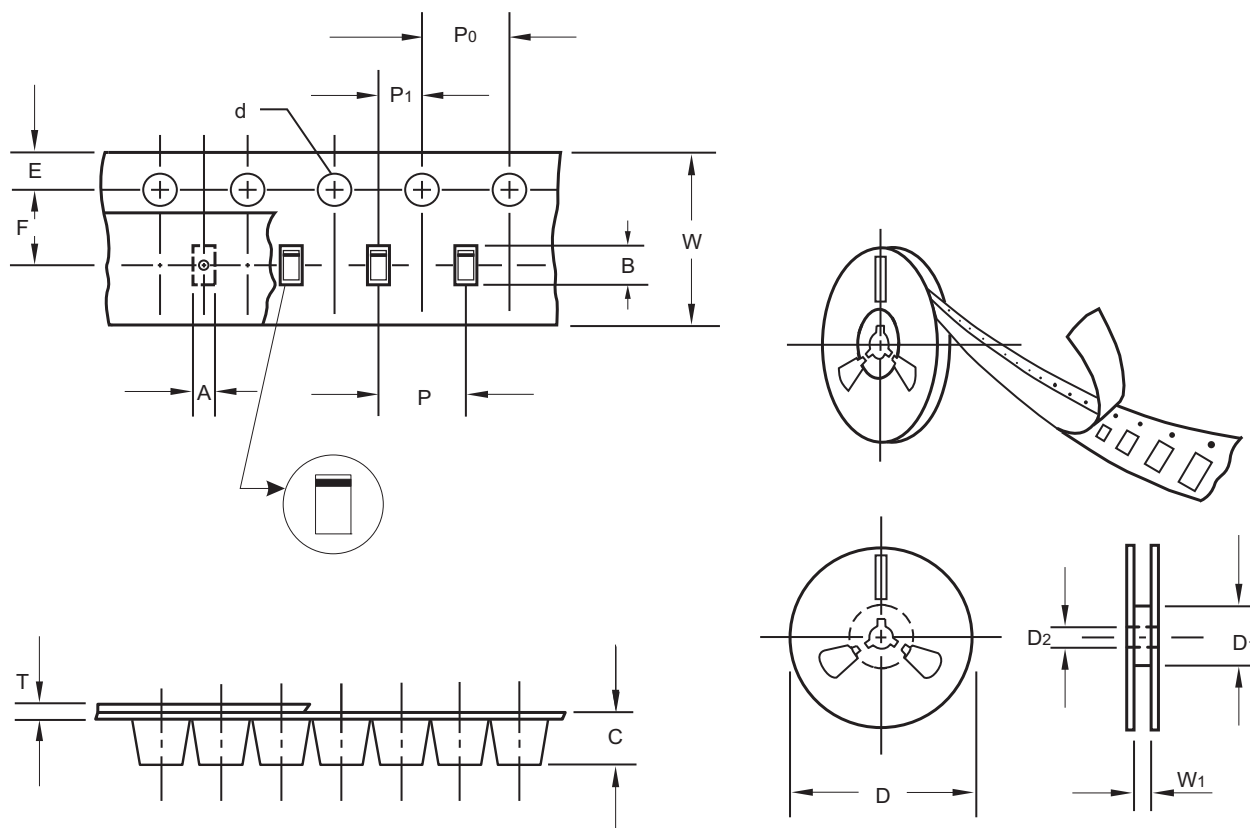


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
T1006P2	0.024 (0.60)	0.016 (0.40)	0.012 (0.30)

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Packing information



unit:mm

Item	Symbol	Tolerance	T1006P2
Carrier width	A	0.05	0.78
Carrier length	B	0.05	1.25
Carrier depth	C	0.05	0.65
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	55.00
Feed hole diameter	D2	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	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	9.50

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

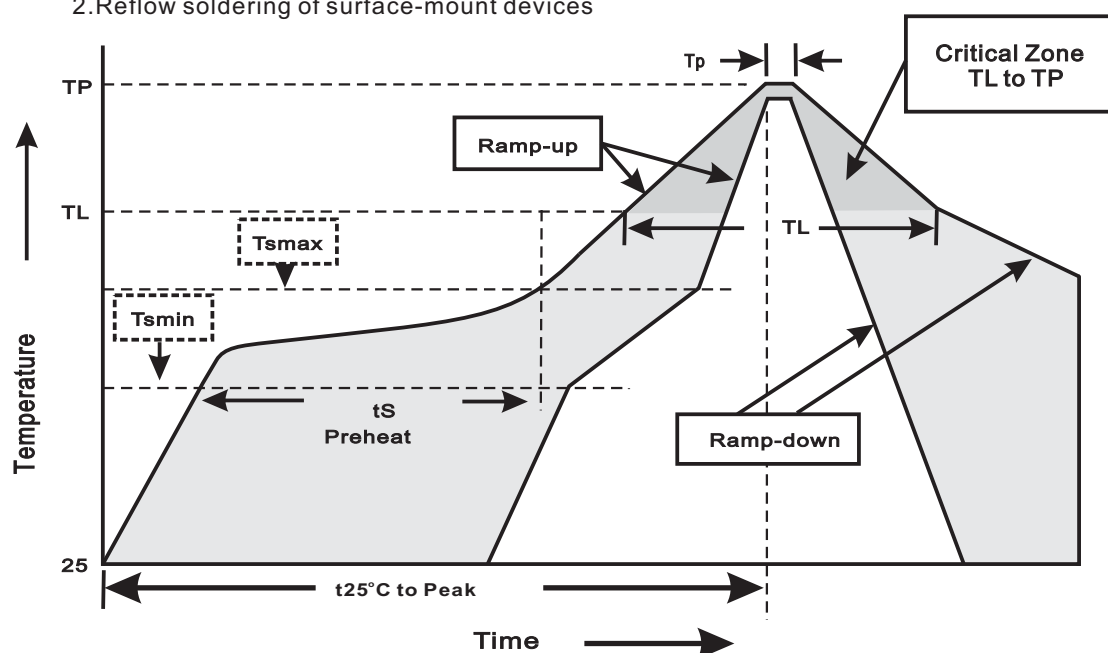
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Reel packing

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)
T1006P2	7"	5,000	4.0	50,000	183*123*183	178	382*257*387	400,000

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

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^{\circ}\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^{\circ}\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A = 121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	8.3ms single half sine-wave , one surge.	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A = 85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031