

KLFM140-T1608-Q1

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KLFM140-T1608-Q1

1A Surface Mount Low Leakage Schottky Barrier Rectifier 40V

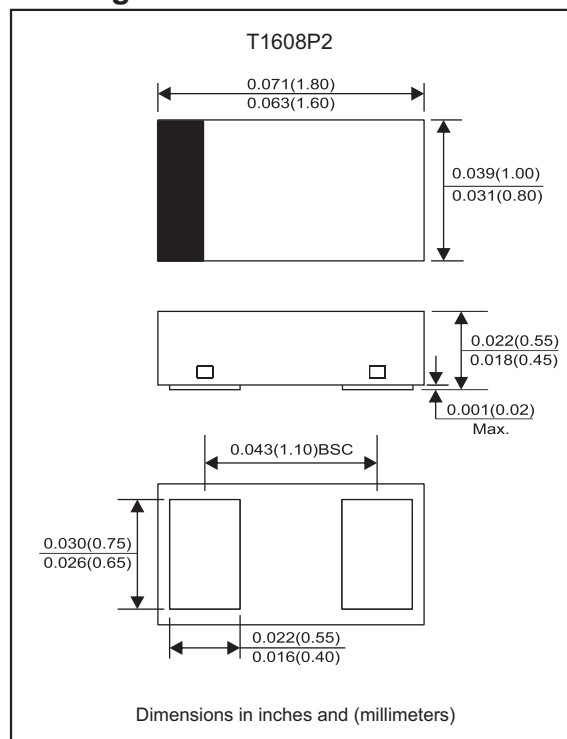
Features

- Low leakage current
- Designed for mounting on small surface.
- Extremely thin package.
- Majority carrier conduction.
- We declare that the material of product compliance with RoHS requirements.
- Qualified to AEC-Q101 standards for high reliability.
- Suffix "-H" indicates Halogen-free parts, ex.KLFM140-T1608-Q1-H

Mechanical data

- Case : Molded plastic, T1608P2
- Terminal: Sn/Au plated, solderable per MIL-STD-750D,method 2026.
- Mounting Position : Any
- Weight : 0.003gram (approx.)

Package outline



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

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Reverse stand-off voltage		V_{RRM}			40	V
DC reverse voltage		V_R			40	V
Average forward rectifying current		I_O			1	A
Peak forward surge current	8.3ms single half-wave superimposed on rate load (JEDEC method)	I_{FSM}			9	A
Power dissipation	Junction to ambient	P_D			500	mW
Thermal resistance	Junction to ambient	$R_{\theta JA}$		181		$^{\circ}\text{C/W}$
Operating junction temperature range		T_J	-55		+150	$^{\circ}\text{C}$
Storage temperature range		T_{STG}	-55		+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	$I_F = 100\text{mA}$ $I_F = 500\text{mA}$ $I_F = 1000\text{mA}$	V_F		0.31 0.41 0.50	0.36 0.46 0.56	V
Reverse current	$V_R = 10\text{V}$ $V_R = 40\text{V}$	I_R			15 40	μA
Capacitance between terminals	$V_R = 0\text{V}$, $f = 1\text{MHz}$	C_T		125		pF

Rating and characteristic curves(KLFM140-T1608-Q1)

Fig.1 - Forward Characteristics

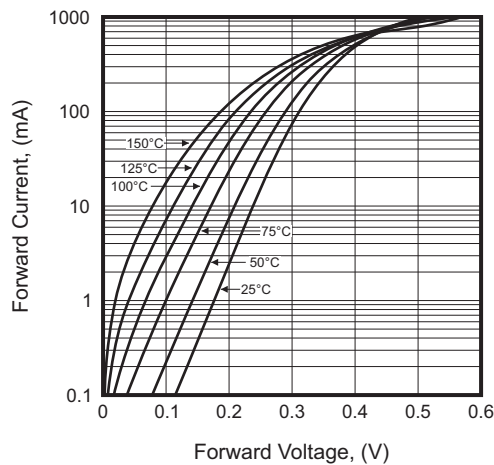


Fig.2 - Reverse Characteristics

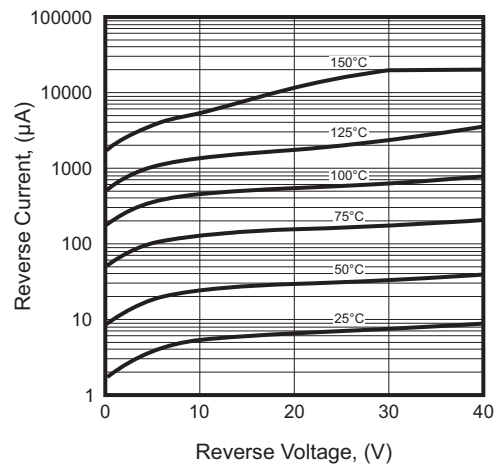


Fig.3 - Typical Capacitance Between Terminals Characteristics

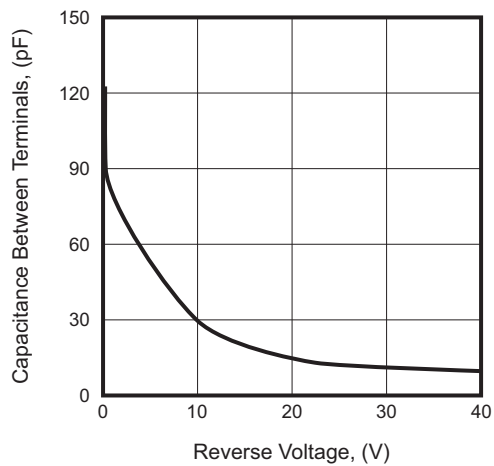
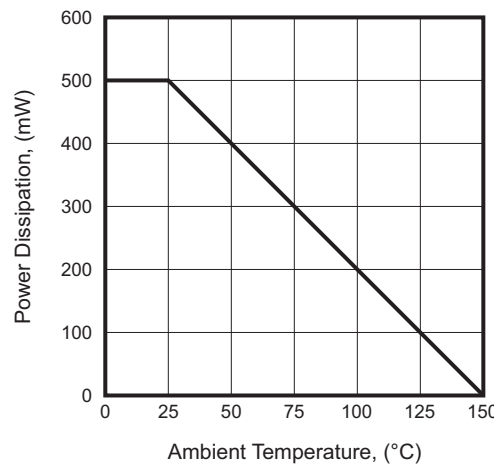


Fig.4 - Power Derating Curve



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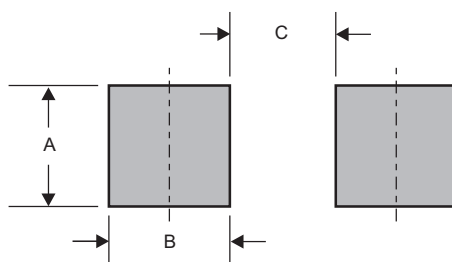
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode	1  2	1  2

Marking

Type number	Marking code
KLFM140-T1608-Q1	14L

Suggested solder pad layout

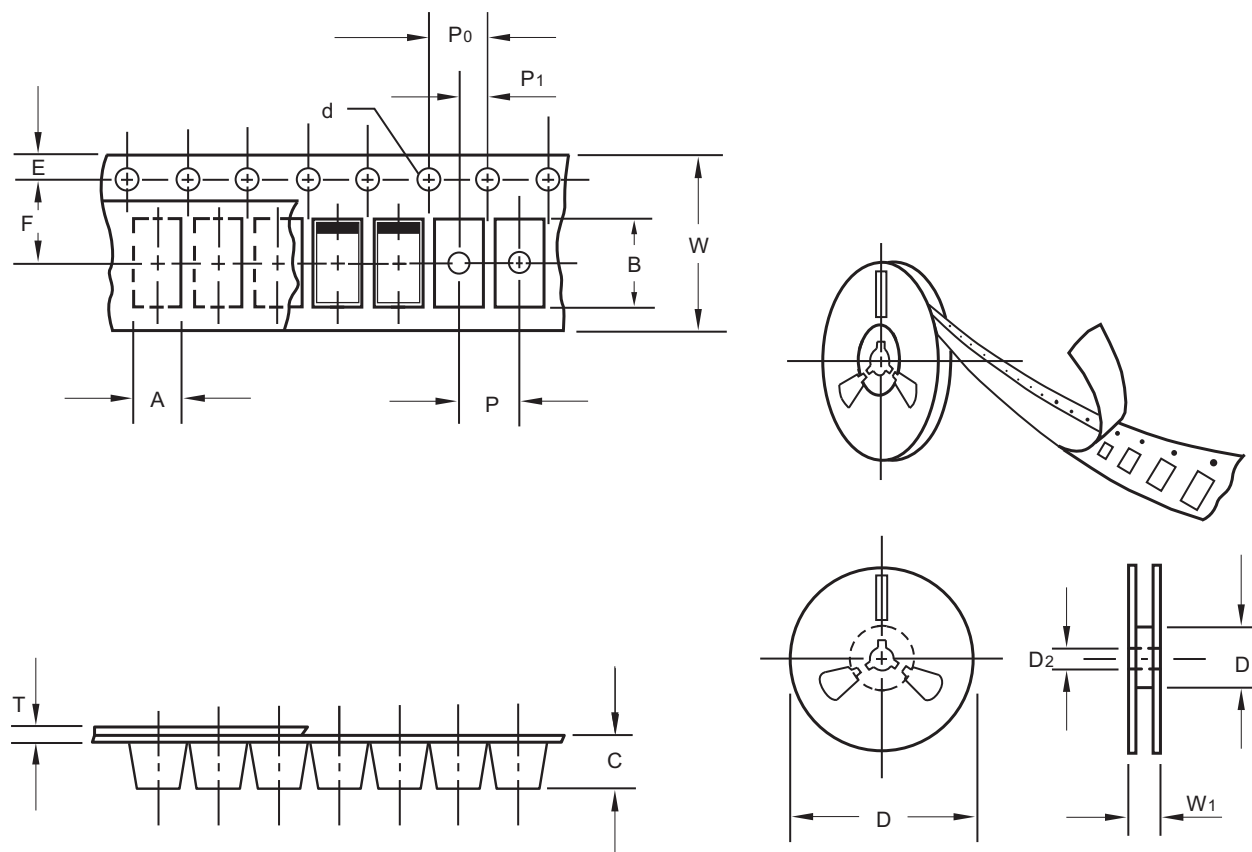


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
T1608P2	0.039 (1.00)	0.028 (0.70)	0.016 (0.40)

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Packing information



unit:mm

Item	Symbol	Tolerance	T1608P2
Carrier width	A	0.05	1.05
Carrier length	B	0.05	1.96
Carrier depth	C	0.05	0.57
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	60.00
Feed hole diameter	D ₂	0.2	13.50
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	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.20
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	12.00

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

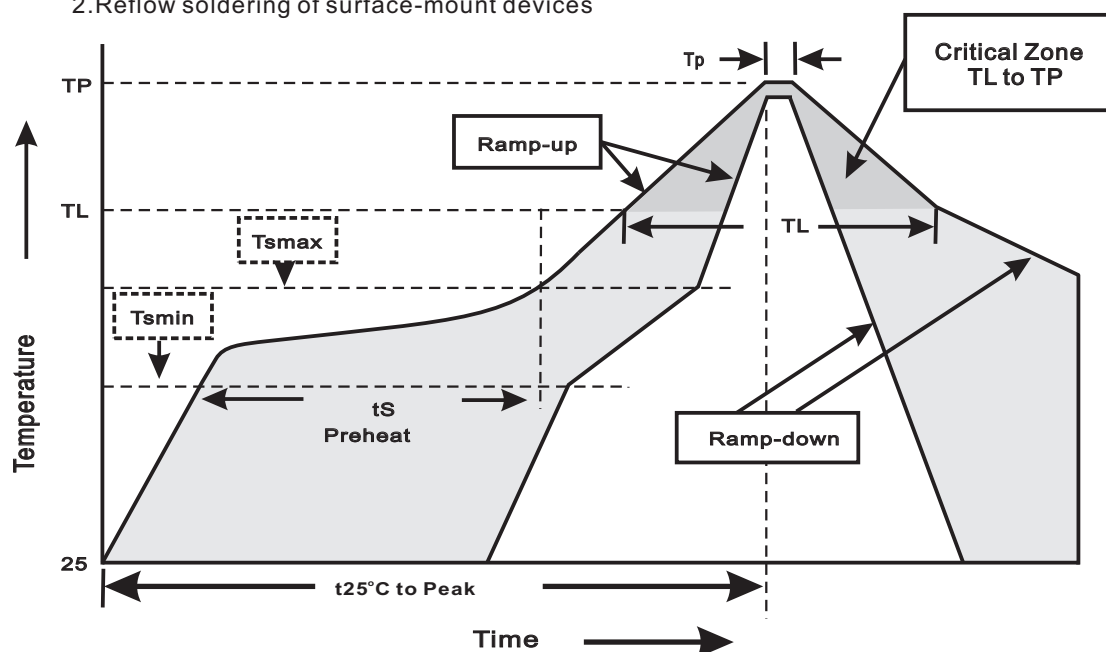
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Reel packing

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)	APPROX. GROSS WEIGHT (kg)
T1608P2	7"	4,000	2.0	40,000	183*123*183	178	382*257*387	320,000	9.5

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 _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} 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. MSL Preconditioning	24hr bake@125°C+168hrs@85°C /85%RH+3xIR@260°C+1flux immersion+alcohol+DI H2O rinse	JESD22-A113
2. High Temperature Reverse Bias	$V_{BR}=V_{BR\ Nom}*80\%$ ($T_j=150^\circ\text{C}$) Test Duration:1000hrs	JESD22-A108
3. High Temperature Storage Life	$T_a=125^\circ\text{C}$ Test Duration: 1000hrs	JESD22 A-103
4. Temperature Cycle	-55°C (15min) to 150°C (15min) Test Cycles: 1000cycles	JESD22 A-104
5. Autoclave	$P=2\text{atm}$ $T_a=121^\circ\text{C}$ $RH=100\%$ Test Duration:96hrs	JESD22 A-102
6. Solderability	$245\pm5^\circ\text{C}$ for 5sec	J-STD-002
7. Moisture Resistance	$T_a=85^\circ\text{C}$ /85% Relative humidity Test Duration:1000hrs	MIL-STD-750E METHOD 1021.2
8. Resistance To Solder Heat	$260\pm5^\circ\text{C}$ for 10sec	JESD22 B-106
9. High Temperature High Humidity Reverse Bias	$T_a=85^\circ\text{C}$, 85%RH, with device reverse biased at 80% of rated breakdown voltage up to a maximum of 100V or limit of chamber Test Duration:1000hrs	JESD22-A101