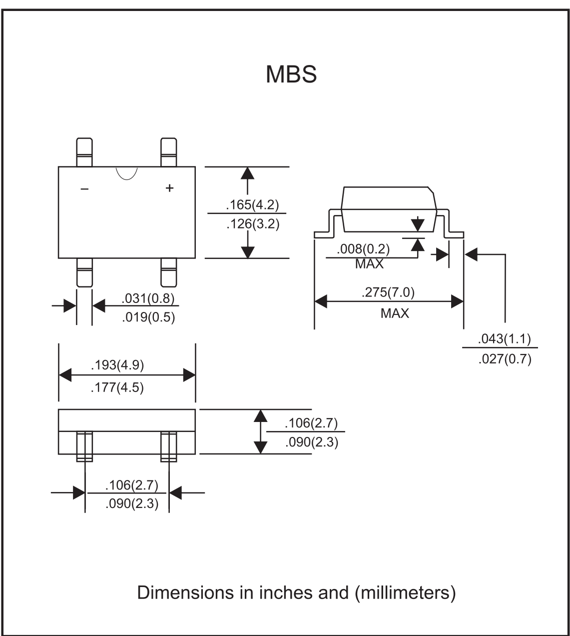
KMB12S THRU KMB120S

1.0A Surface Mount Schottky Barrier Single-Phase Bridge Rectifiers-20-200V

Features

- Surge overload ratings to 30 amperes peak.
- 1.0A rating in l ow profile surface mount mini-dip bridge save space on printed circuit board.
- Ideal for automated replacement.
- Reliable low cost construction utilizing molded plastic technology results in inexpensive product.
- Silicon eplana epitaxial chip, metal silicon junction.
- Lead-free parts meet RoHS requirments.

Package outline



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, MBS
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : marked on body
- Mounting Position : Any

Maximum ratings and Electrical Characteristics (AT T_A=25°C unless otherwise noted)

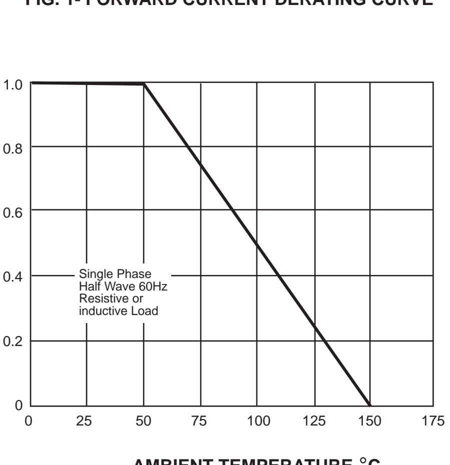
PARAMETER	SYMBOLS	KMB12S	KMB14S	KMB16S	KMB110S	KMB115S	KMB120S	UNITS
Maximum repetitive peak reverse voltage	V_{RRM}	20	40	60	100	150	200	V
Maximum RMS voltage	V_{RMS}	14	28	42	70	105	140	V
Maximum DC blocking voltage	V_{DC}	20	40	60	100	150	200	V
Maximum average forward rectified current at T_L(see fig.1)	$I_{(AV)}$	1.0						A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	30.0						A
Maximum instantaneous forward voltage at 1.0A	V_F	0.55		0.70	0.85	0.92		V
Maximum DC reverse current T_J=25℃ at rated DC blocking voltage T_J=100℃	I_R	0.2 10.0						mA
Typical junction capacitance (NOTE 1)	C_J	28						pF
Typical thermal resistance (NOTE 2)	$R_{\theta JA}$	75						°C/W
Operating junction temperature range	T_J,	-55 to +125		-55 to +150				°C
Storage temperature range	T_{STG}	-55 to +150						°C

Note:1.Measured at 1.0MHz and applied reverse voltage of 4.0V DC

2.Thermal resistance from junction to ambient mounted on P.C.B with 0.5*0.5"(13*13mm)copper pads.

Rating and characteristic curves

FIG. 1- FORWARD CURRENT DERATING CURVE



AVERAGE FORWARD RECTIFIED CURRENT, AMPERES

AMBIENT TEMPERATURE, °C

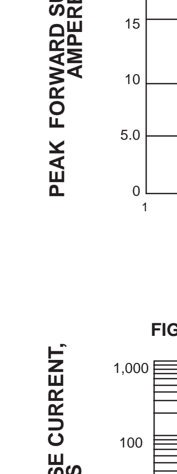
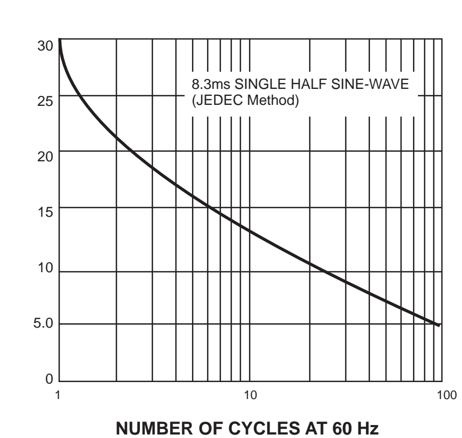


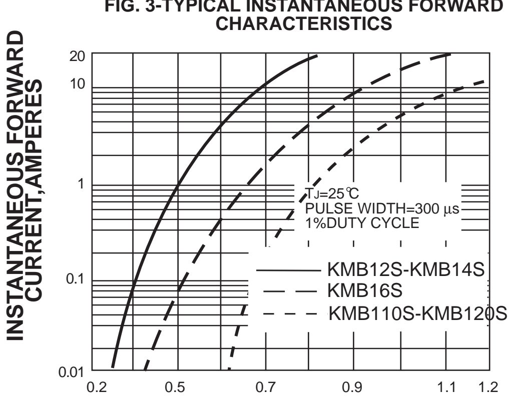
FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



PEAK FORWARD SURGE CURRENT, AMPERES

NUMBER OF CYCLES AT 60 Hz

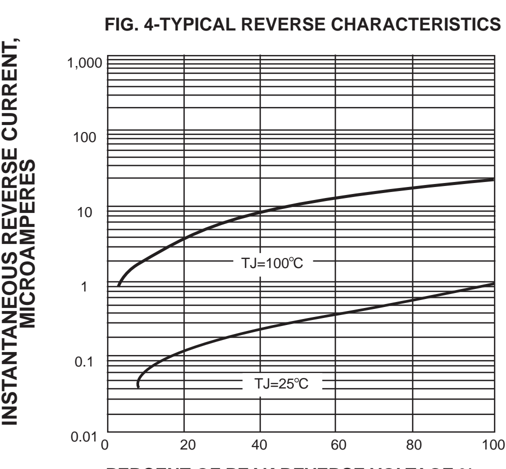
FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS FORWARD CURRENT,AMPERES

INSTANTANEOUS FORWARD VOLTAGE, VOLTS

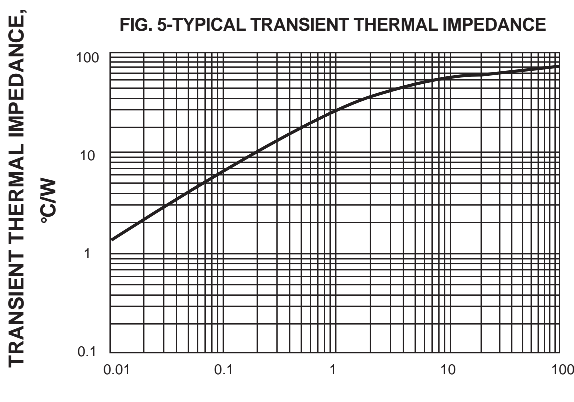
FIG. 4-TYPICAL REVERSE CHARACTERISTICS



INSTANTANEOUS REVERSE CURRENT, MICROAMPERES

PERCENT OF PEAK REVERSE VOLTAGE,%

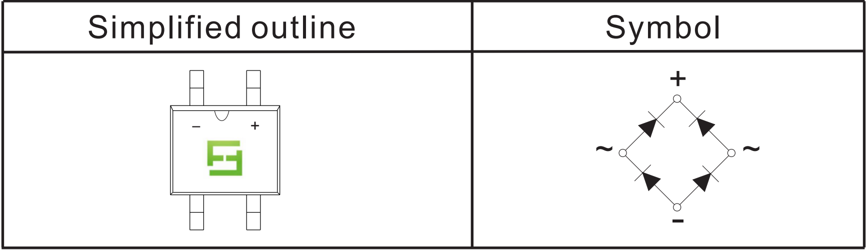
FIG. 5-TYPICAL TRANSIENT THERMAL IMPEDANCE



TRANSIENT THERMAL IMPEDANCE, °C/W

t,PULSE DURATION,sec.

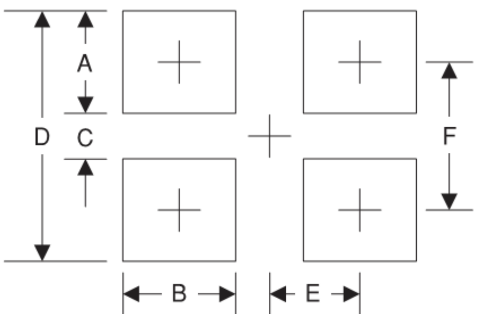
Pinning information



Marking

Type number	Marking code
KMB12S	KMB12S
KMB14S	KMB14S
KMB16S	KMB16S
KMB110S	KMB110S
KMB115S	KMB115S
KMB120S	KMB120S

Suggested solder pad layout

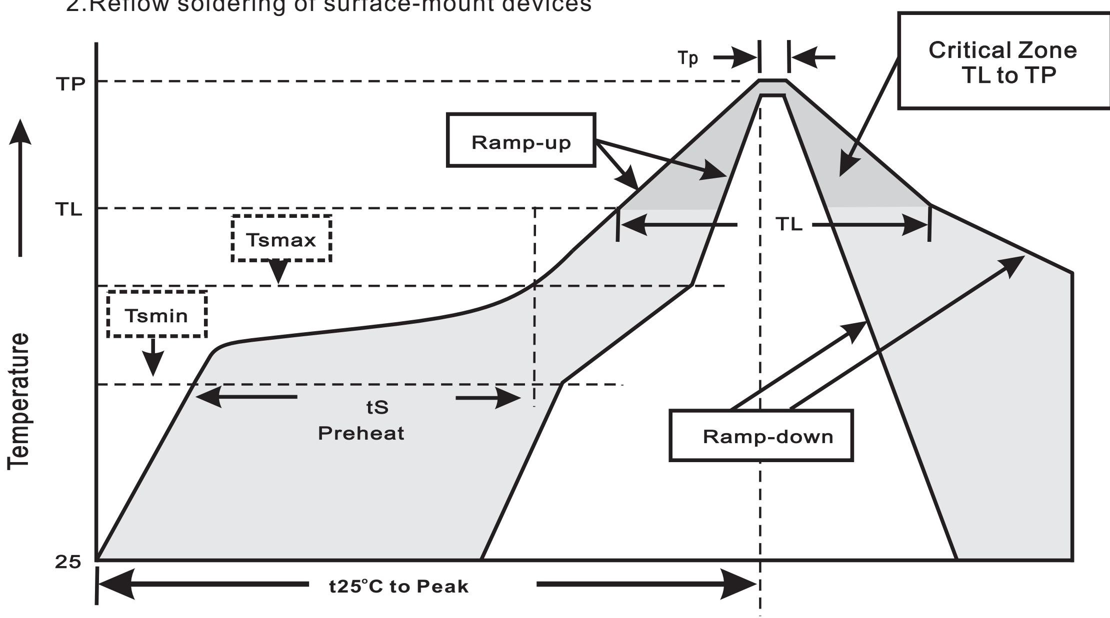


Symbol	Unit (mm)	Unit (inch)
A	1.7	0.067
B	1.0	0.039
C	4.40	0.173
D	8.10	0.319
E	1.25	0.049
F	6.30	0.248

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