

SKFM3040CW-D2-Q1 Thru SKFM30200CW-D2-Q1**List**

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SKFM3040CW-D2-Q1 Thru SKFM30200CW-D2-Q1

30.0A Surface Mount

Schottky Barrier Rectifiers : 40V ~ 200V

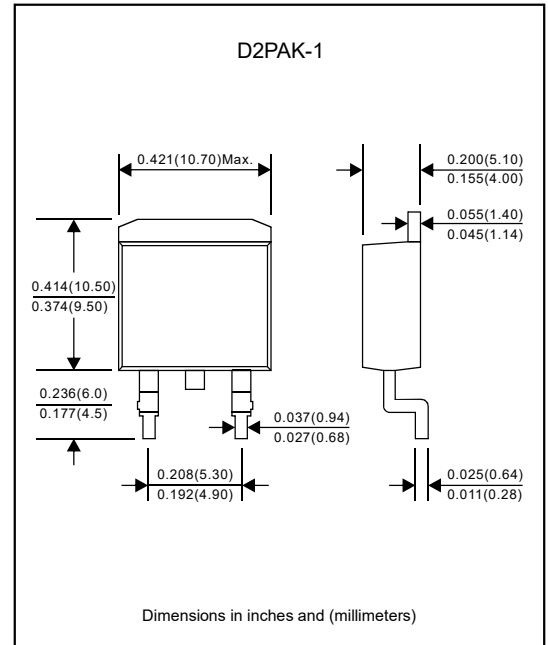
Features

- Construction utilizes void-free molded plastic technique.
- Low reverse leakage.
- High forward surge current capability.
- High temperature soldering guaranteed 260°C/10s at terminals.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Qualified to AEC-Q101 standards for high reliability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. SKFM3040CW-D2-Q1-H.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant.
- Case : Molded plastic, TO-263 / D2PAK-1.
- Terminals : Solder plated, solder able per MIL-STD-750, Method 2026.
- Mounting Position : Any.

Package outline



Maximum Ratings and electrical characteristics

Ratings at 25 C ambient temperature unless otherwise specified.

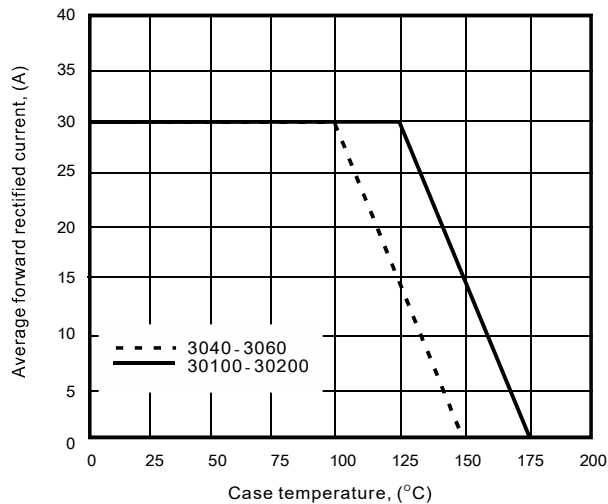
Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

Parameter		Symbol	SKFM3040 CW-D2-Q1	SKFM3045 CW-D2-Q1	SKFM3060 CW-D2-Q1	SKFM30100 CW-D2-Q1	SKFM30150 CW-D2-Q1	SKFM30200 CW-D2-Q1	Unit
Repetitive peak reverse voltage		V _{RRM}	40	45	60	100	150	200	V
RMS voltage		V _{RMS}	28	31.5	42	70	105	140	V
DC blocking voltage		V _{DC}	40	45	60	100	150	200	V
Maximum Average forward rectified	(Per device)	I _(AV)	30						A
current at T _c =110°C	(Per diode)		15						
Peak forward surge current 8.3ms single half sine-wave (JEDEC method)		I _{FSM}	200						A
Forward voltage per leg at I _F =15A		V _F	0.6		0.75	0.88	0.98		V
DC reverse current	(T _A =25°C)	I _R	0.2			0.05			mA
at rated DC blocking voltage	(T _A =125°C)		20			10			
Typical thermal resistance		R _{BJC}	3.5						°C/W
Operating junction temperature range		T _J	-55 to +150			-55 to +175			°C
Storage temperature range		T _{STG}	-55 to +150						°C

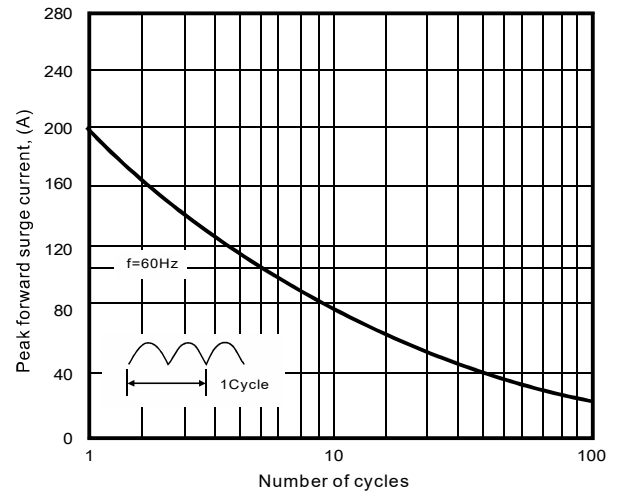
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Rating and characteristic curves

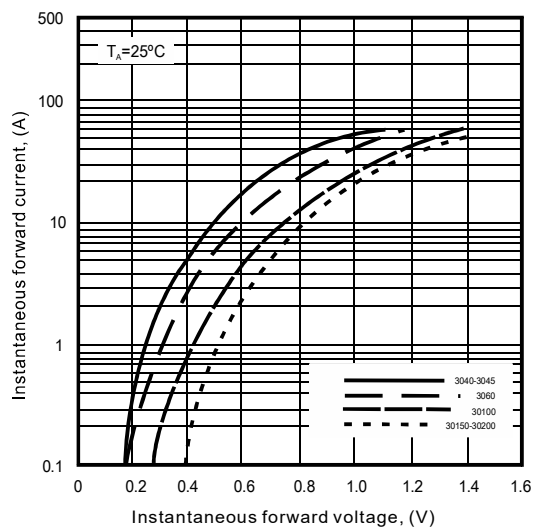
Derating curve output rectified current



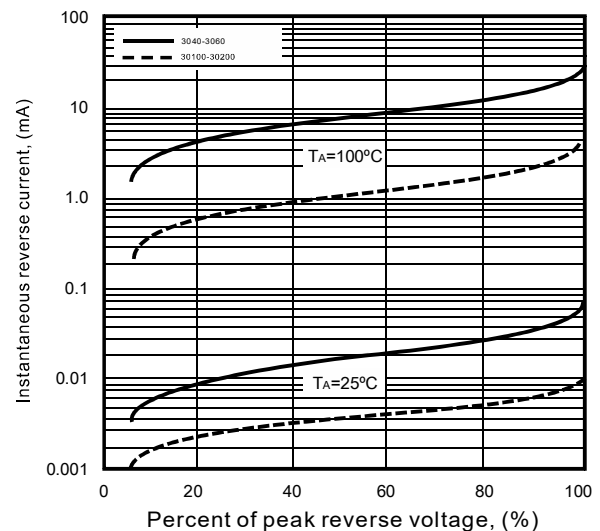
Maximum non-repetitive peak forward surge current per leg



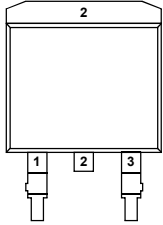
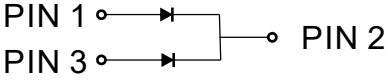
Typical forward voltage characteristics



Typical reverse leakage characteristics

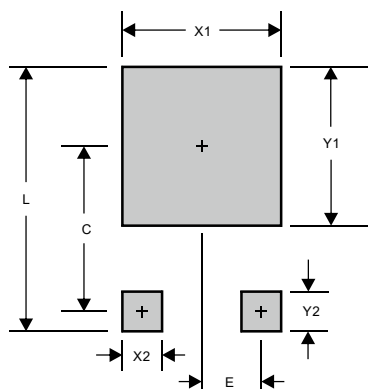


SKFM3040CW-D2-Q1 Thru SKFM30200CW-D2-Q1**Pinning information**

Pin	Simplified outline	Symbol
Pin1 Anode Pin2 Cathode Pin3 Anode		

Marking

Type number	Marking code
SKFM3040CW-D2-Q1	MBR3040CTV
SKFM3045CW-D2-Q1	MBR3045CTV
SKFM3060CW-D2-Q1	MBR3060CTV
SKFM30100CW-D2-Q1	MBR30100CTV
SKFM30150CW-D2-Q1	MBR30150CTV
SKFM30200CW-D2-Q1	MBR30200CTV

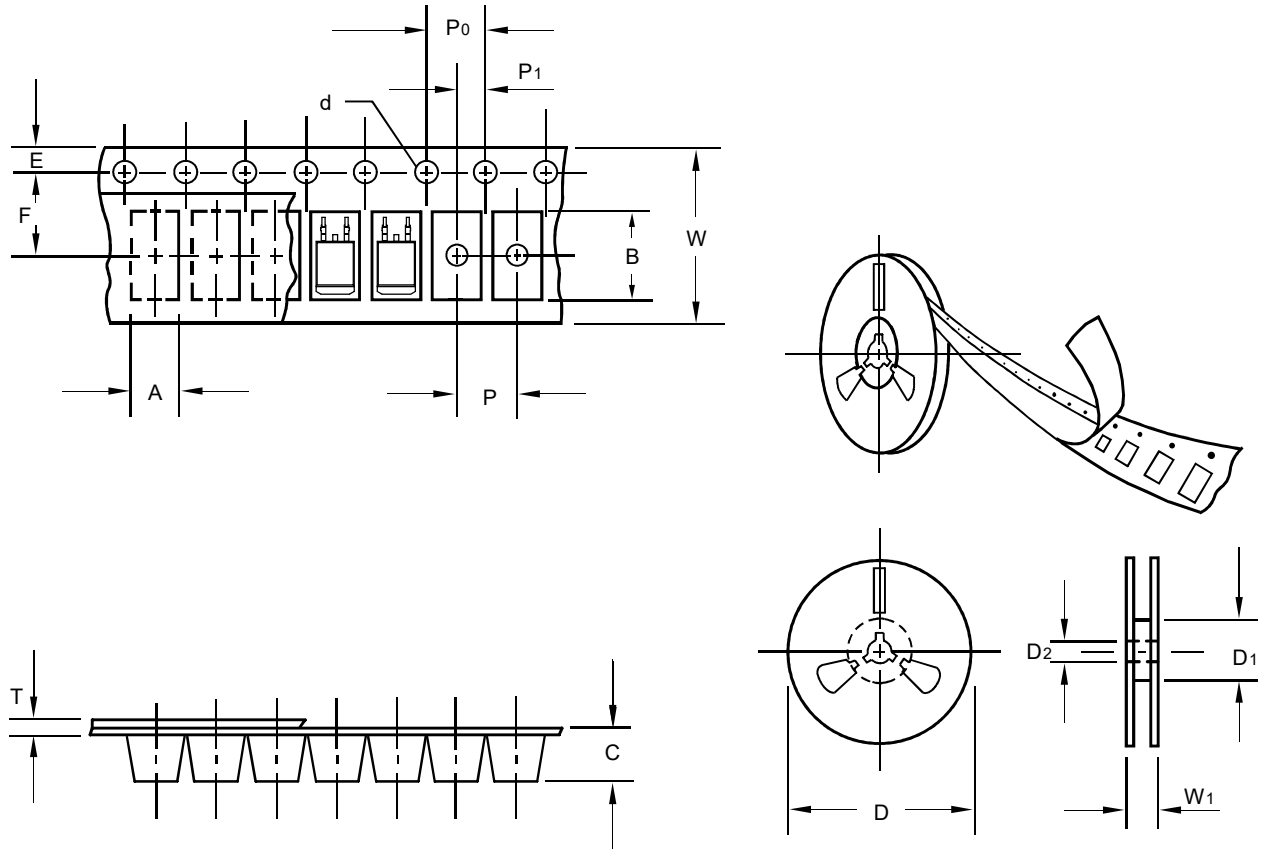
Suggested solder pad layout

PACKAGE	D2PAK-1
C	0.374(9.50)
E	0.098(2.50)
L	0.665(16.90)
X1	0.425(10.80)
X2	0.071(1.80)
Y1	0.449(11.40)
Y2	0.138(3.50)

Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	D2PAK-1
Carrier width	A	0.1	10.70
Carrier length	B	0.1	16.30
Carrier depth	C	0.1	5.10
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D ₁	min	50.00
7" Reel outside diameter	D	2.0	-
7" Reel inner diameter	D ₁	min	-
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	11.50
Punch hole pitch	P	0.1	16.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	24.00
Reel width	W ₁	1.0	30.00

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

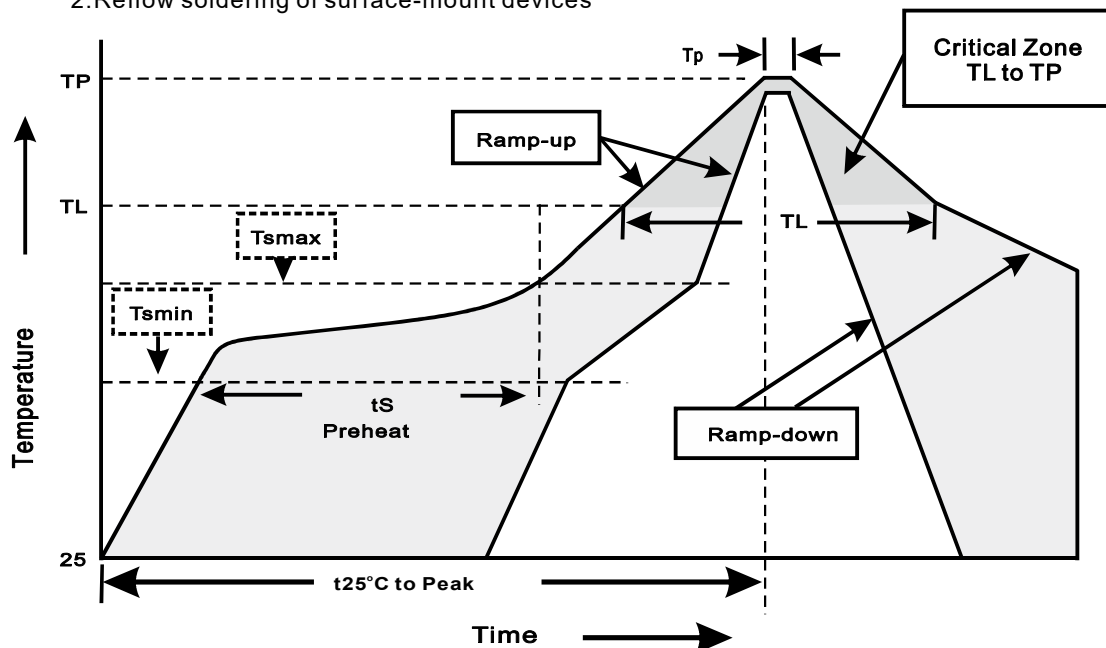
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Reel packing

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)
D2PAK-1/ TO-263	13"	800	16.0	800	340*340*38	330	360*360*360	6,400	15.0

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	<3°C/sec
Time 25°C to Peak Temperature	<6minutes

SKFM3040CW-D2-Q1 Thru SKFM30200CW-D2-Q1**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		JESD22 B-106
9. High Temperature High Humidity Reverse Bias	$260\pm5^\circ\text{C}$ for 10sec $T_a=85^\circ\text{C}$, 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