

SKFM640CW-D-Q1 Thru SKFM6200CW-D-Q1

List

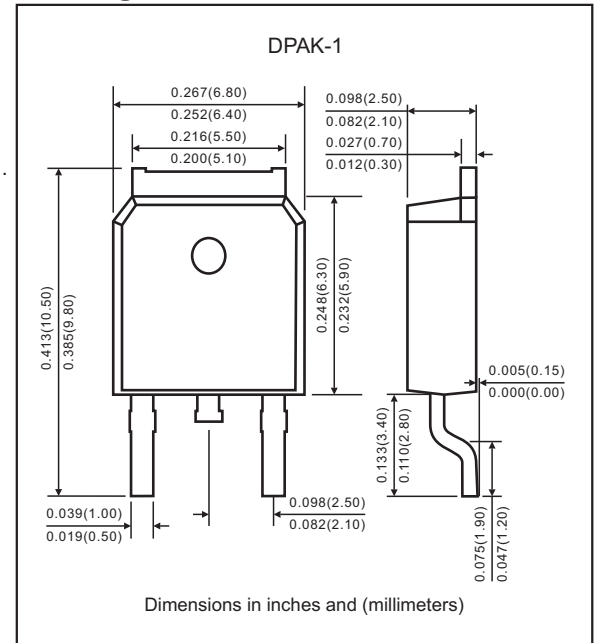
List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings and electrical characteristics	2
Rating and characteristic curves.....	3
Pinning information.....	4
Marking.....	4
Suggested solder pad layout.....	4
Packing information.....	5
Reel packing.....	6
Suggested thermal profiles for soldering processes.....	6
High reliability test capabilities.....	7

SKFM640CW-D-Q1 Thru SKFM6200CW-D-Q1**6.0Amp Surface Mount Schottky
Barrier Rectifiers 40-200V****Features**

- The plastic package carries underwrites laboratory flammability classification 94V-0.
- Construction utilizes void-free molded plastic technique.
- Low reverse leakage.
- High forward surge current capability.
- High temperature soldering guaranteed 260°C/10 seconds at terminals.
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC.
- Qualified to AEC-Q101 standards for high reliability.
- Suffix "-H" indicates Halogen free parts, ex. SKFM640CW-D-Q1-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DPAK-1 (TO-252)
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.34 gram

Package outline**Maximum ratings and electrical characteristics** (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Rating 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	SKFM6 40CW-D-Q1	SKFM6 45CW-D-Q1	SKFM6 60CW-D-Q1	SKFM6 100CW-D-Q1	SKFM6 150CW-D-Q1	SKFM6 200CW-D-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
Average forward rectified Current at T _c =110°C	I _(AV)	6.0						A
		3.0						
Peak forward surge current 8.3ms single half sine wave superimposed on rated load (JEDEC Method)	I _{FSM}	80.0						A
Instantaneous forward voltage per diode at 3.0A	V _F	0.55		0.7	0.85	0.95		V
DC reverse current At rated DC blocking voltage	I _R	0.05			0.05			mA
		20			10			
Typical thermal resistance	R _{θJC}	2.5						°C/W
Operating junction temperature range	T _J	+150						°C
Storage temperature range	T _{STG}	-55 to +150						°C

Rating and characteristic curves (SKFM640CW-D-Q1 Thru SKFM6200CW-D-Q1)

FIG. 1- DERATING CURVE OUTPUT RECTIFIED CURRENT

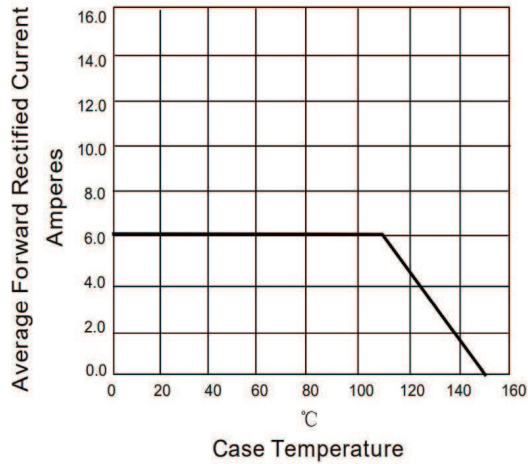


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PERLEG

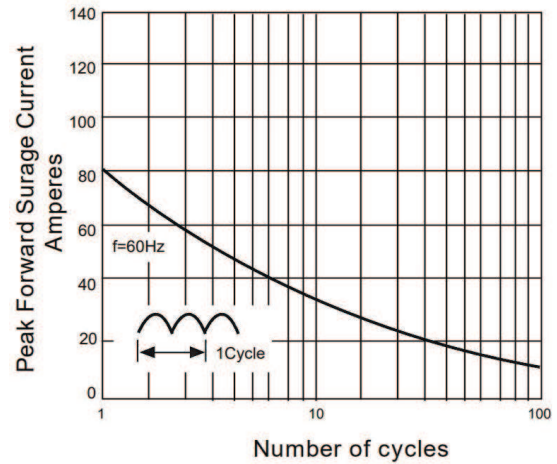


FIG. 3-TYPICAL FORWARD VOLTAGE CHARACTERISTICS

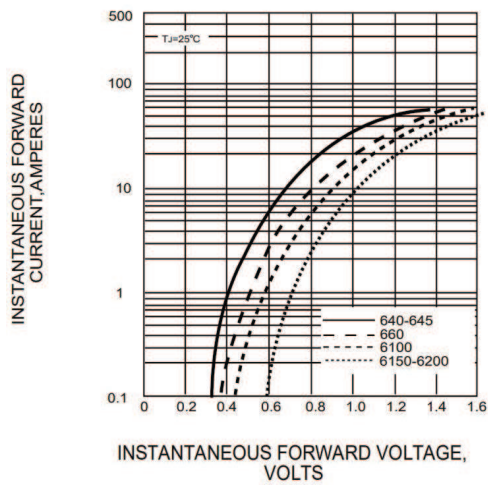
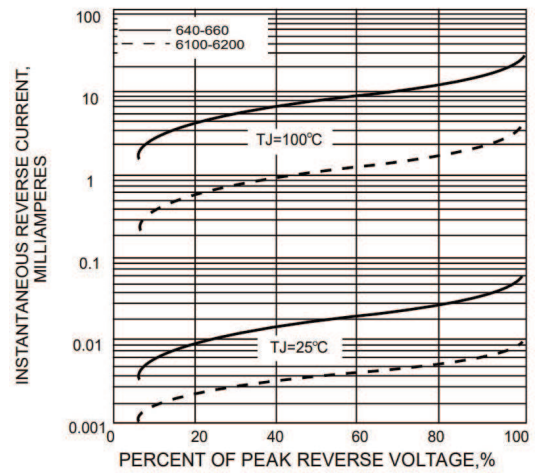
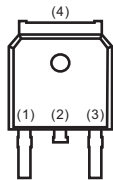
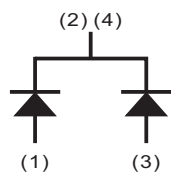


FIG. 4-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

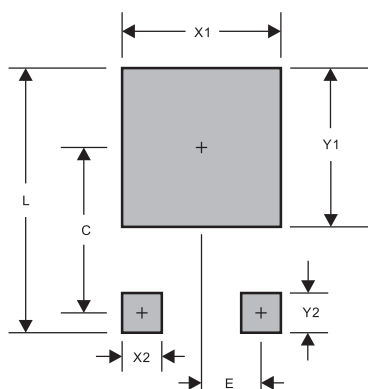


SKFM640CW-D-Q1 Thru SKFM6200CW-D-Q1**Pinning information**

Pin	Simplified outline	Symbol
Pin1, 3 Anode Pin2, 4 Cathode		

Marking

Type numbe	Marking code
SKFM640CW-D-Q1	MBR640CSV
SKFM645CW-D-Q1	MBR645CSV
SKFM660CW-D-Q1	MBR660CSV
SKFM6100W-D-Q1	MBR6100CSV
SKFM6150CW-D-Q1	MBR6150CSV
SKFM6200CW-D-Q1	MBR6200CSV

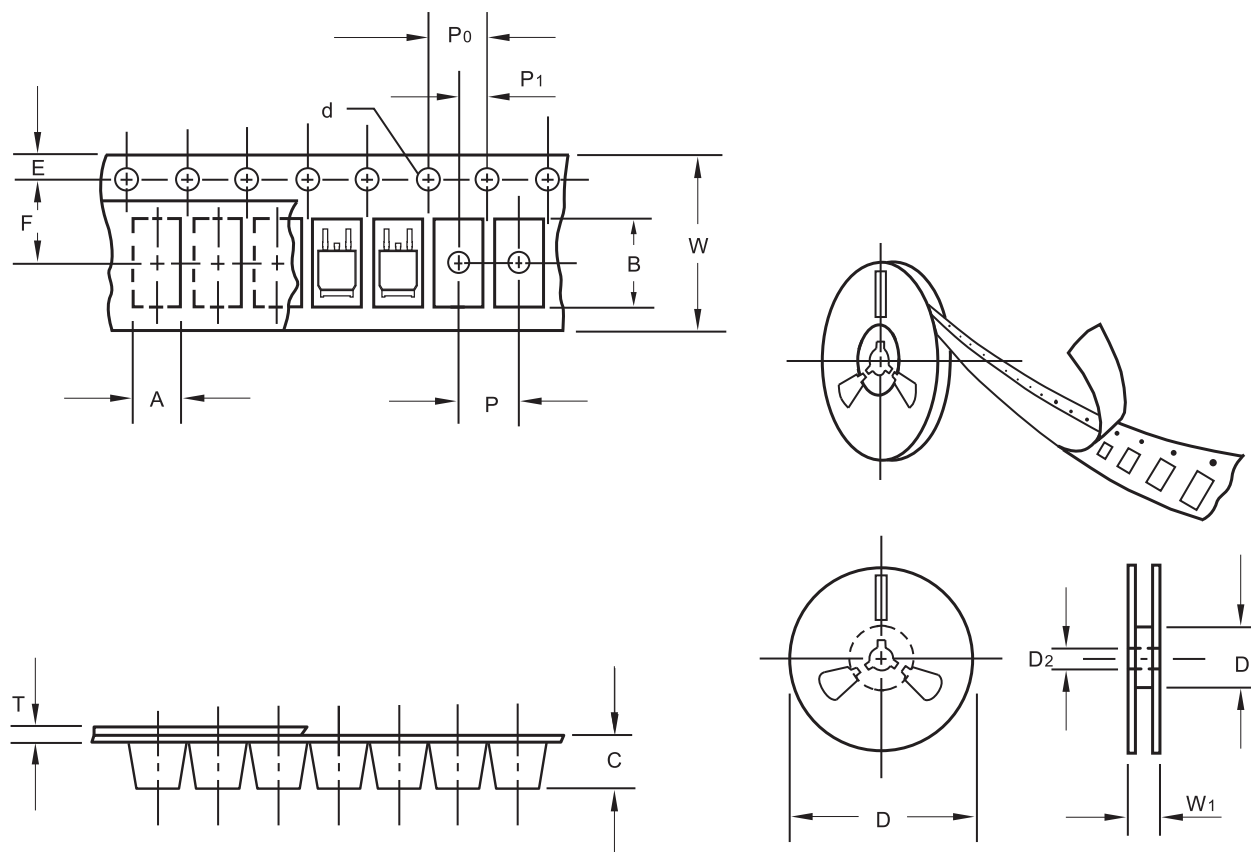
Suggested solder pad layout

PACKAGE	DPAK-1
C	0.261(6.64)
E	0.091(2.30)
L	0.457(11.60)
X1	0.240(6.10)
X2	0.056(1.42)
Y1	0.298(7.57)
Y2	0.109(2.76)

Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	DPAK-1
Carrier width	A	0.1	6.90
Carrier length	B	0.1	10.50
Carrier depth	C	0.1	2.70
Sprocket hole	d	0.1	1.55
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D1	min	50.00
7" Reel outside diameter	D	2.0	-
7" Reel inner diameter	D1	min	-
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	7.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.30
Tape width	W	0.3	16.00
Reel width	W1	1.0	22.00

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

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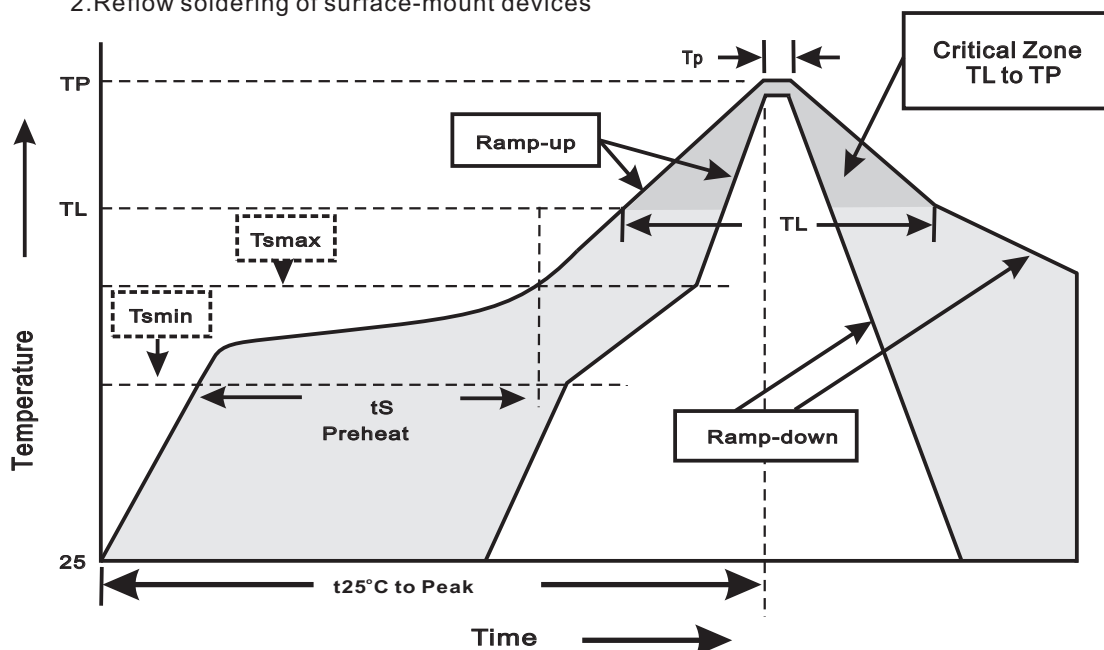
Reel packing

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)
DPAK-1/ TO-252	13"	2,500	8.0	5,000	335*335*38	330	350*350*225	25,000	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	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

SKFM640CW-D-Q1 Thru SKFM6200CW-D-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	$260\pm5^\circ\text{C}$ 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