

SKFM2040CW-D Thru SKFM20200CW-D**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

SKFM2040CW-D Thru SKFM20200CW-D

20.0Amp Surface Mount Schottky Barrier Rectifiers 40-200V

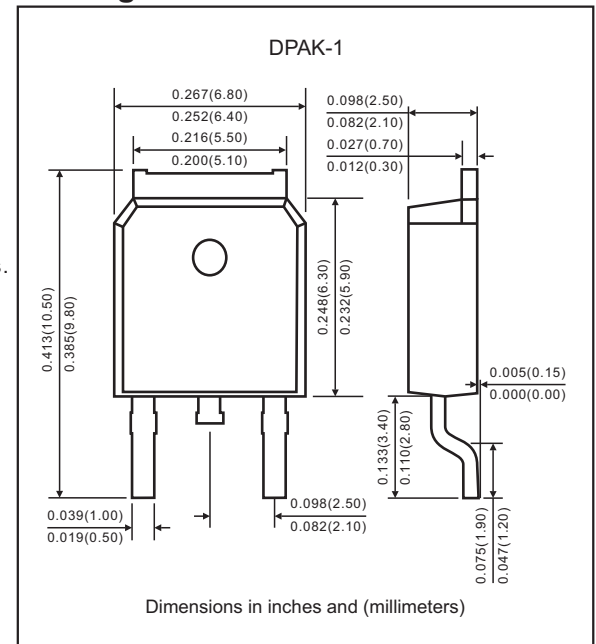
Features

- 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.
- Suffix "-H" indicates Halogen free parts, ex. SKFM2040CW-D-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	SKFM 2040CW-D	SKFM 2045CW-D	SKFM 2060CW-D	SKFM 20100CW-D	SKFM 20150CW-D	SKFM 20200CW-D	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	40	45	60	100	150	200	V
Maximum RMS voltage	V _{RMS}	28	31.5	42	70	105	140	V
Maximum DC blocking voltage	V _{DC}	40	45	60	100	150	200	V
Maximum average forward rectified (Per device)	I _(AV)	20.0						A
Current at T _c =110°C (Per diode)		10.0						
Peak forward surge current 8.3ms single half sine wave superimposed on rated load (JEDEC Method)	I _{FSM}	150.0						A
Maximum instantaneous forward voltage per diode at 10.0A	V _F	0.55		0.75	0.85	0.95		V
Maximum DC reverse current T _A =25°C	I _R	0.5			0.05			mA
At rated DC blocking voltage T _A =125°C		50			10			
Typical thermal resistance	R _{θJC}	15.0						°C/W
Operating junction temperature range	T _J	+150						°C
Storage temperature range	T _{STG}	-55 to +150						°C

Rating and characteristic curves (SKFM2040CW-D Thru SKFM20200CW-D)

FIG.1-DERATING CURVE OUTPUT RECTIFIED CURRENT

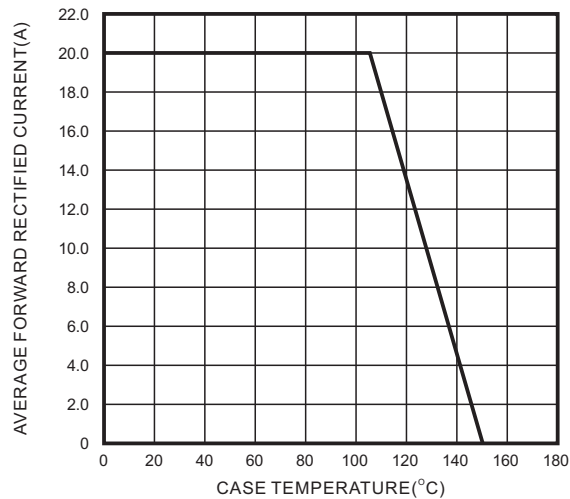


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

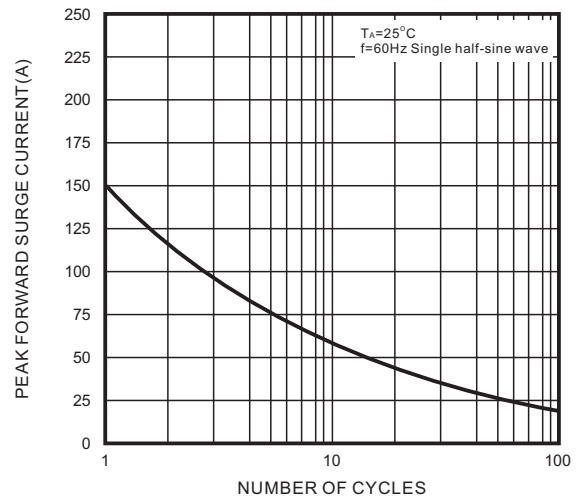


FIG.3-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

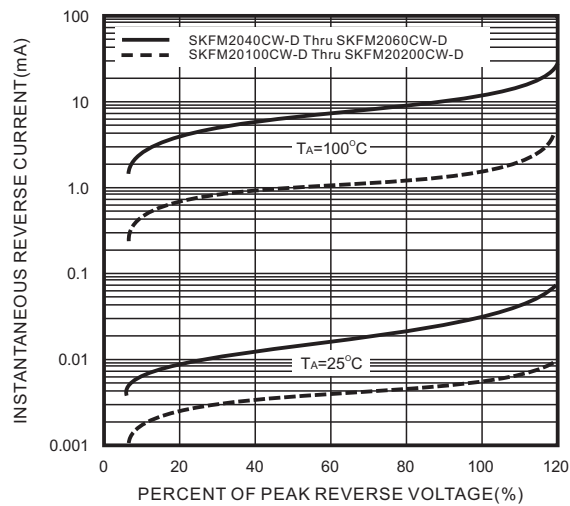
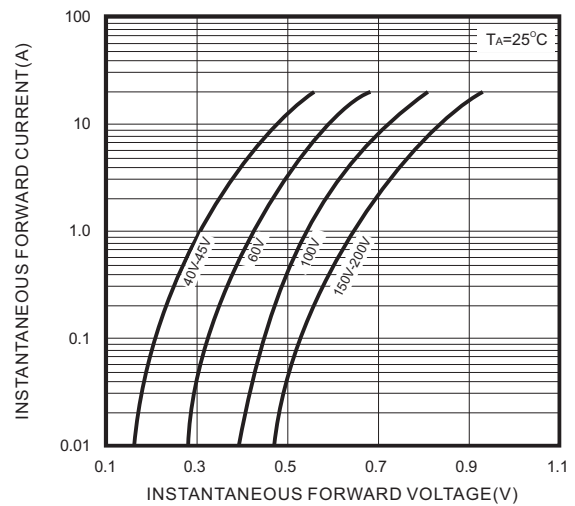


FIG.4-TYPICAL FORWARD VOLTAGE CHARACTERISTICS

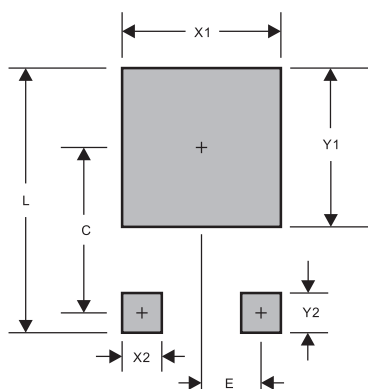


SKFM2040CW-D Thru SKFM20200CW-D**Pinning information**

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

Marking

Type number	Marking code
SKFM2040CW-D	MBR2040CS
SKFM2045CW-D	MBR2045CS
SKFM2060CW-D	MBR2060CS
SKFM20100CW-D	MBR20100CS
SKFM20150CW-D	MBR20150CS
SKFM20200CW-D	MBR20200CS

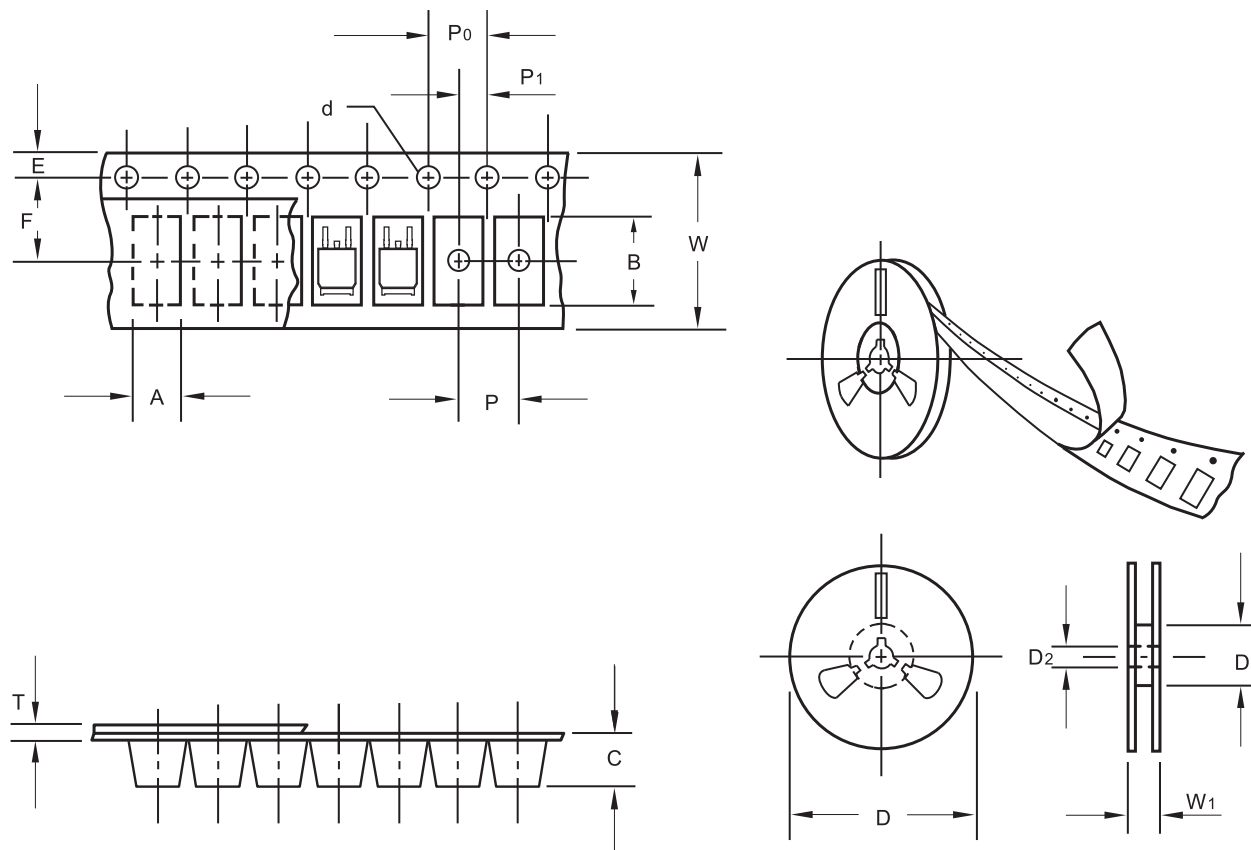
Suggested solder pad layout

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)

SKFM2040CW-D Thru SKFM20200CW-D

Packing information



unit:mm

Item	Symbol	Tolerance	DKAK-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.

SKFM2040CW-D Thru SKFM20200CW-D

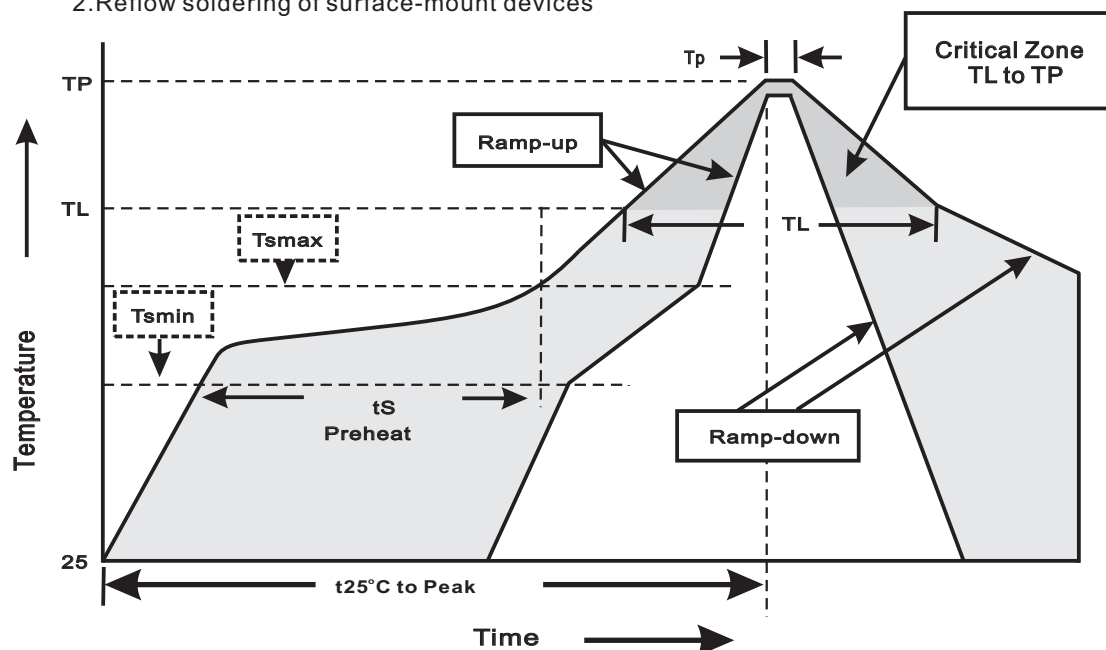
Reel packing

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	40,000	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 _{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

SKFM2040CW-D Thru SKFM20200CW-D

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{sec.}$ immerse body into solder $1/16" \pm 1/32"$	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 $T_J = 125^\circ\text{C}$ 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 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031