

EGFM5H05JW-D-Q1

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EGFM5H05JW-D-Q1

5.0A 600V FRED Efficient Fast Rectifiers

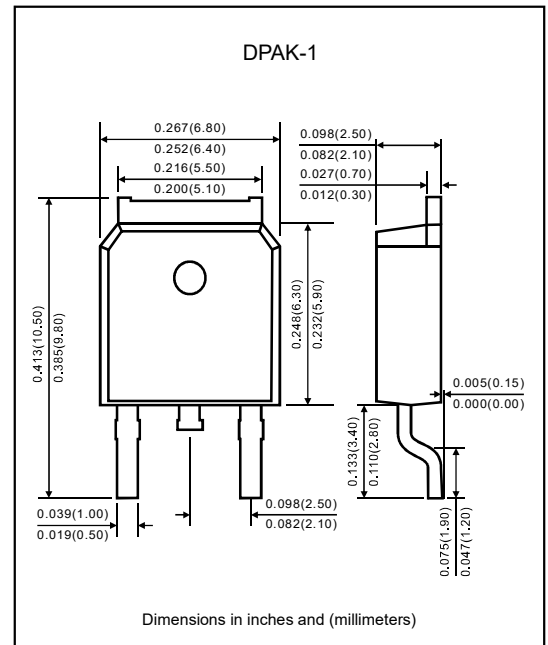
Features

- 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.
- Qualified to AEC-Q101 standards for high reliability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. EGFM5H05JW-D-Q1-H.

Mechanical data

- Case : Molded plastic body, TO-252 (DPAK-1).
- Terminals : Solder plated, solder able per MIL-STD-750, Method 2026.
- Polarity : Polarity symbol marking on body.
- Mounting Position : Any.

Package outline



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

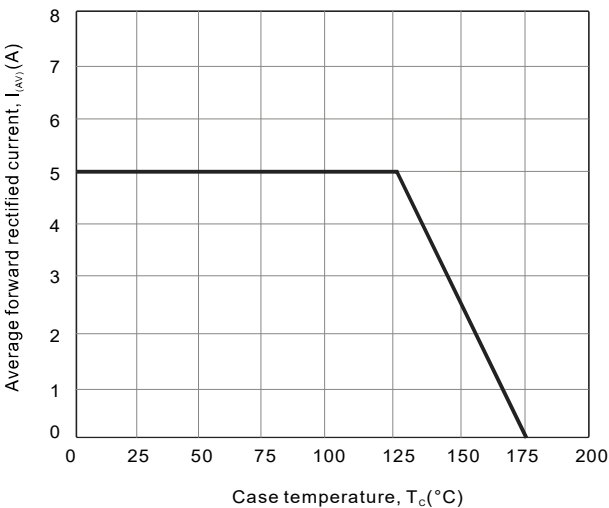
Parameter	Symbol	Ratings	Units
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum RMS voltage	V_{RMS}	420	V
Maximum DC blocking voltage	V_{DC}	600	V
Maximum average forward rectified current at $T_C=110^\circ\text{C}$	$I_{(AV)}$	5	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	80	A
Maximum instantaneous forward voltage at 5.0A	V_F	2.4	V
Maximum DC reverse current ($T_A=25^\circ\text{C}$)	I_R	5	μA
at rated DC blocking voltage ($T_A=125^\circ\text{C}$)		100	
Maximum reverse recovery time	t_{rr}	25	ns
Typical thermal resistance	$R_{\theta JC}$	4	$^\circ\text{C/W}$
Operating junction temperature	T_J	+175	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

Note : 1. Reverse recovery time test condition: $I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{rr}=0.25\text{A}$.

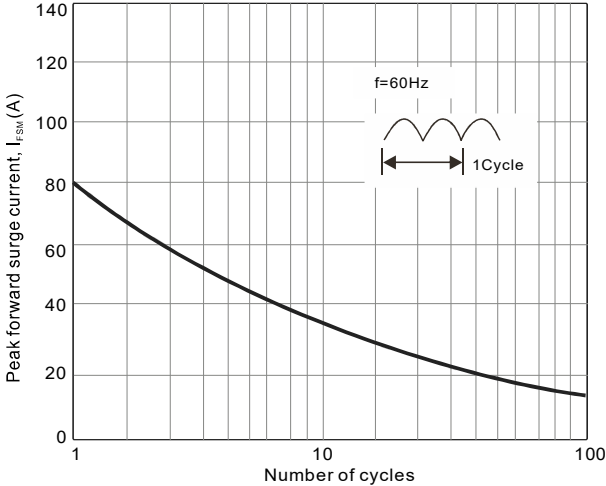
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Rating and characteristic curves

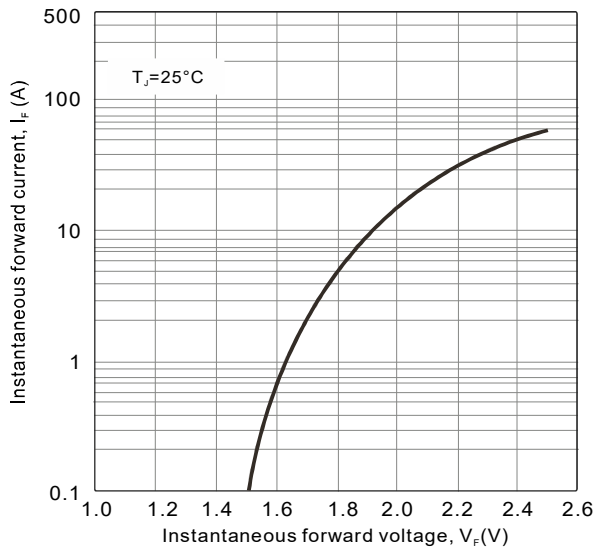
Derating curve output rectified current



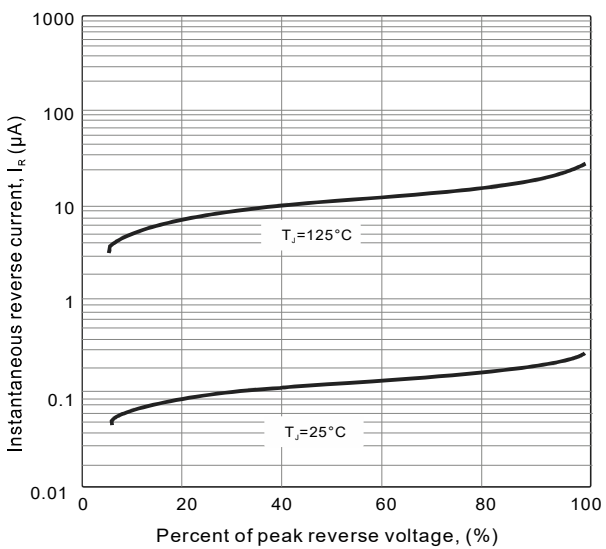
Maximum non-repetitive peak forward surge current per leg.



Typical forward voltage characteristics

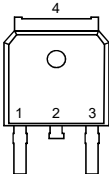
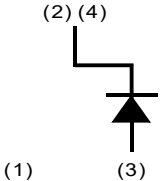


Typical reverse leakage characteristics



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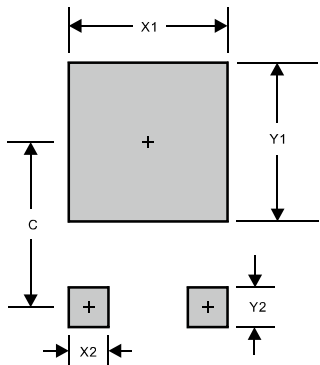
Pinning information

Pin	Simplified outline	Symbol
Pin 1 NC Pin 3 Anode Pin 2, 4 Cathode		

Marking

Type number	Marking code
EGFM5H05JW-D-Q1	ER560SV

Suggested solder pad layout

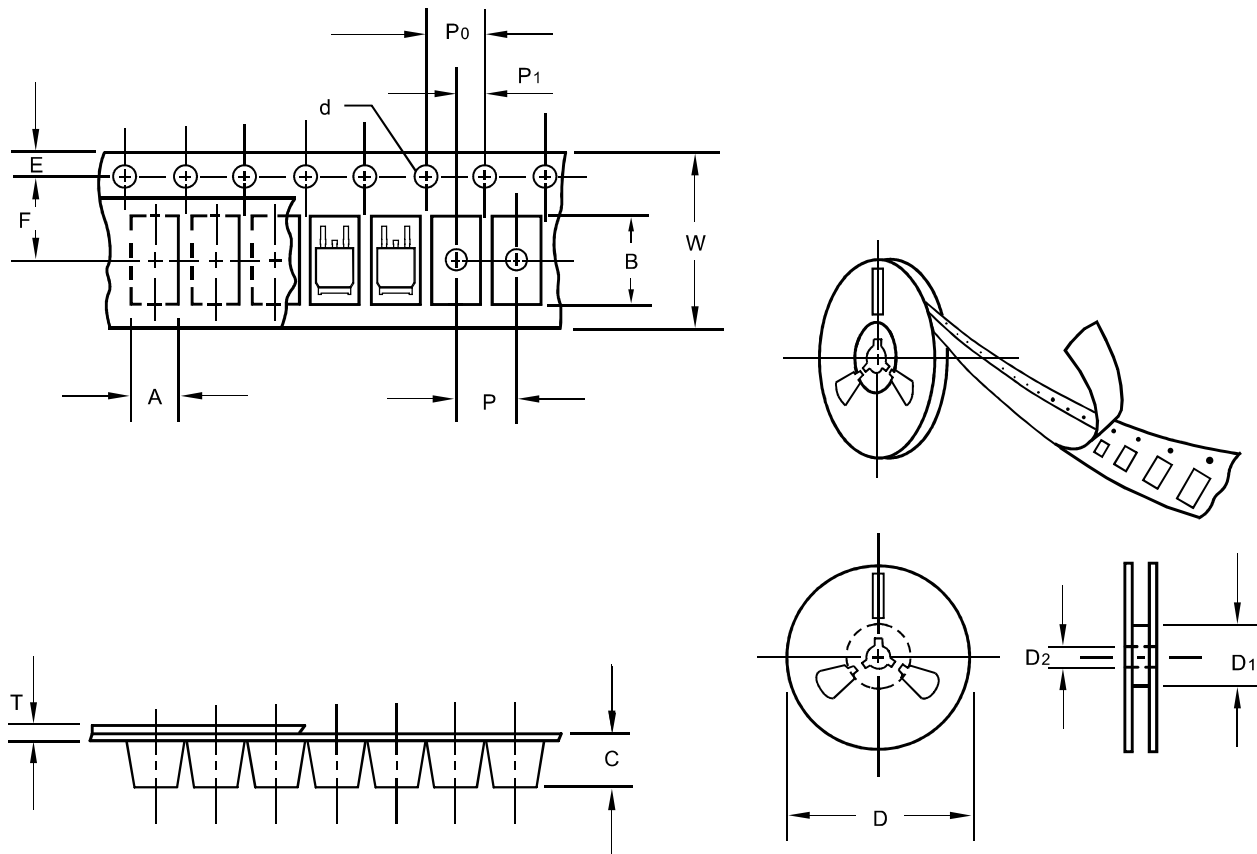


PACKAGE	DPAK-1
C	0.261(6.64)
X1	0.240(6.10)
X2	0.056(1.42)
Y1	0.298(7.57)
Y2	0.109(2.76)

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	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	7.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.30
Tape width	W	0.3	16.00

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

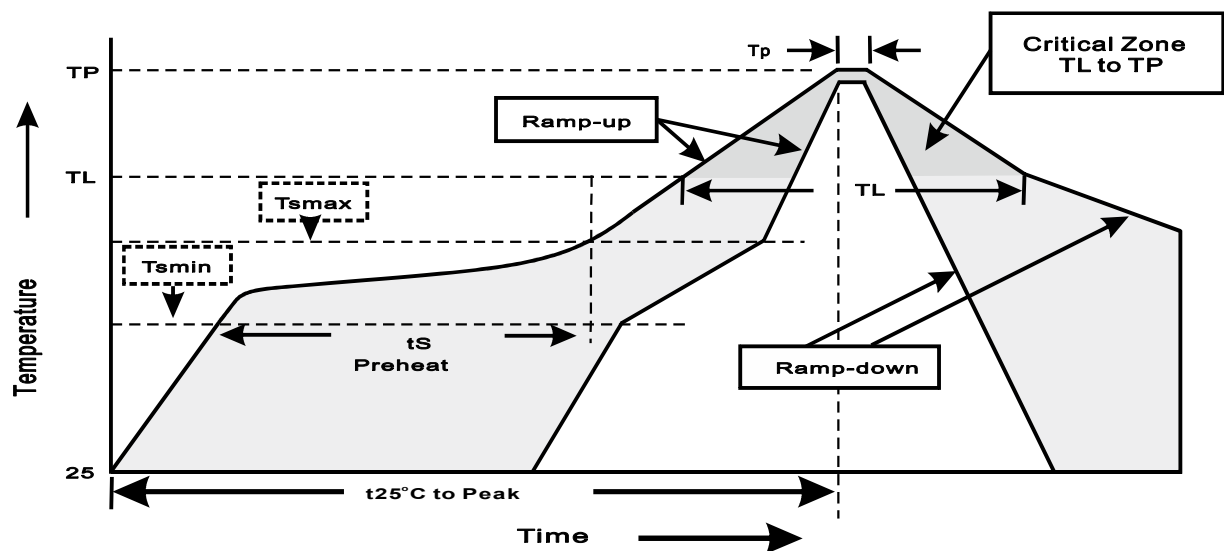
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	REEL DIA, (m/m)	CARTON (pcs)
DPAK-1/TO-252	13"	2,500	8.0	5,000	330	40,000

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 _{5min}) -Temperature Max(T _{5max}) -Time(min to max)(t _S)	150°C 200°C 60~120sec
T _{5max} 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	$V_{DS}=V_{DS} \times 80\%$ ($T_J=T_{J \text{ max.}}$) Test Duration:1000hrs	JESD22-A108
3. High Temperature Storage Life	$T_a=150^\circ\text{C}$ 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	$245 \pm 5^\circ\text{C}$ 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	$260 \pm 5^\circ\text{C}$ for 10sec	JESD22 B-106
9. High Temperature High Humidity Reverse Bias	$T_a=85^\circ\text{C}$, 85%RH, $V_{DS}=80\%$ rated V_{DS} Test Duration: 1000hrs	JESD22-A101