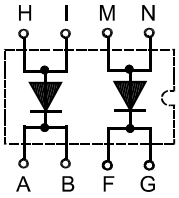
Fast Recovery Epitaxial Diode (FRED)

I_{FAVM} = 2x28 A
V_{RRM} = 1200 V
t_{rr} = 40 ns

V_{RSM} V	V_{RRM} V	Type
1200	1200	DSEI 2x 31-12P





Symbol	Conditions	Maximum Ratings (per diode)	
I_{FRMS}	$T_{VJ} = T_{VJM}$	70	A
I_{FAVM} ①	T_C = 50°C; rectangular; d = 0.5	28	A
I_{FRM}	t_P < 10 µs; rep. rating; pulse width limited by T_{VJM}	375	A
I_{FSM}	T_{VJ} = 45°C; t = 10 ms (50 Hz), sine	200	A
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+150	°C
P_{tot}	T_C = 25°C	100	W
V_{ISOL}	50/60 Hz, RMS t = 1 min	2500	V~
	$I_{ISOL} \leq$ 1 mA t = 1 s	3000	V~
M_d	Mounting torque (M4)	1.5 - 2.0	Nm
		14 - 18	lb.in.
Weight		18	g

Symbol	Conditions	Characteristic Values (per diode) typ.	max.	
I_R	T_{VJ} = 25°C $V_R = V_{RRM}$		750	µA
	T_{VJ} = 25°C V_R = 0.8 • V_{RRM}		250	µA
	T_{VJ} = 125°C V_R = 0.8 • V_{RRM}		7	mA
V_F	I_F = 30 A; T_{VJ} = 150°C		2.20	V
	T_{VJ} = 25°C		2.55	V
V_{T0}	For power-loss calculations only		1.65	V
r_T	$T_{VJ} = T_{VJM}$		18.2	mΩ
R_{thJC}			1.25	K/W
R_{thCK}		0.05		K/W
t_{rr}	I_F = 1 A; -di/dt = 100 A/µs	40	50	ns
	V_R = 30 V; T_{VJ} = 25°C			
I_{RM}	V_R = 540 V; I_F = 30 A; -di_F/dt = 240 A/µs	16	18	A
	L ≤ 0.05 µH; T_{VJ} = 100°C			
d_S	Creeping distance on surface		min. 11.2	mm
d_A	Creeping distance in air		min. 11.2	mm
a	Allowable acceleration		max. 50	m/s²

① I_{FAVM} rating includes reverse blocking losses at T_{VJM}, V_R = 0.8 V_{RRM}, duty cycle d = 0.5
Data according to IEC 60747

Features

- 2 independent FRED in 1 package
- Isolation voltage 3000 V~
- Planar passivated chips
- Leads suitable for PC board soldering
- Very short recovery time
- Soft recovery behaviour

Applications

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- Low noise switching
- Small and light weight

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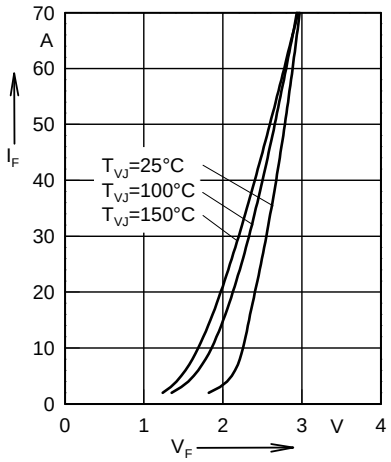


Fig. 1 Forward current versus voltage drop.

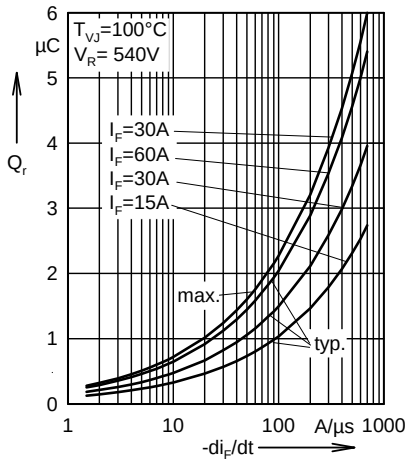


Fig. 2 Recovery charge versus -di_F/dt.

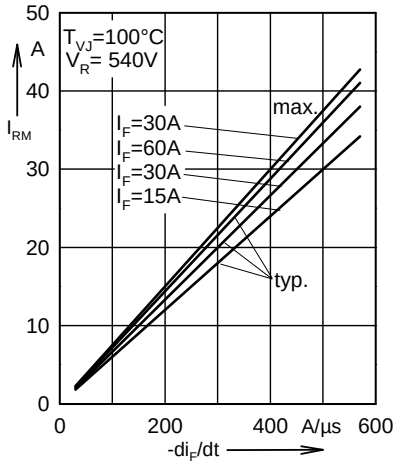


Fig. 3 Peak reverse current versus -di_F/dt.

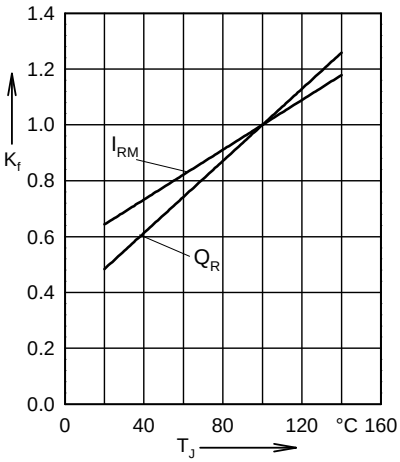


Fig. 4 Dynamic parameters versus junction temperature.

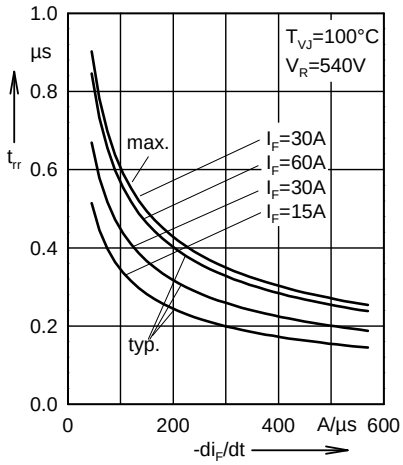


Fig. 5 Recovery time versus -di_F/dt.

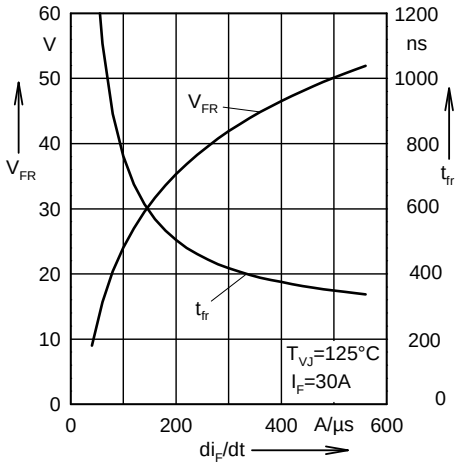


Fig. 6 Peak forward voltage versus di_F/dt.

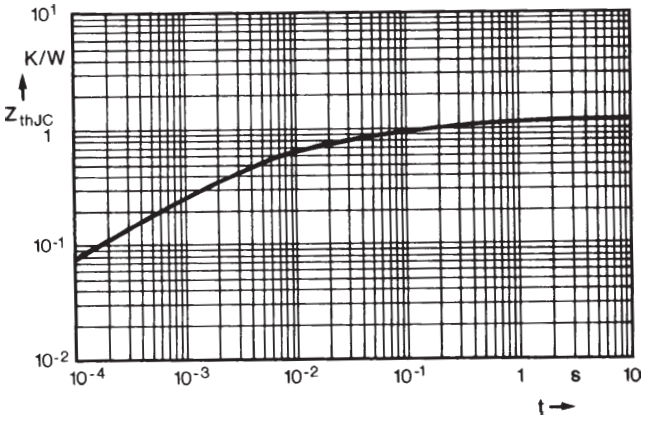
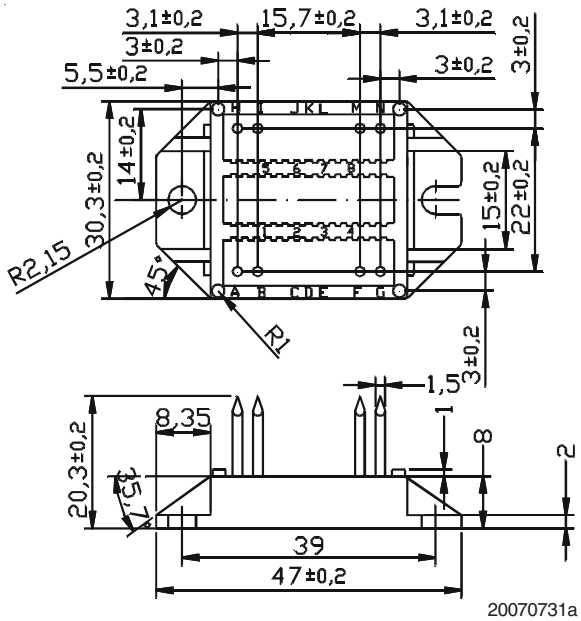


Fig. 7 Transient thermal impedance junction to case.

Dimensions in mm (1mm = 0.0394“)



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