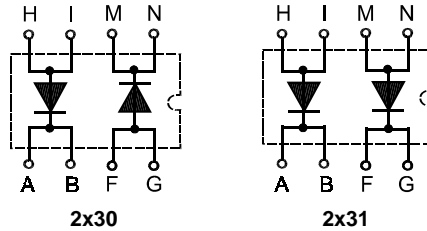


Fast Recovery Epitaxial Diode (FRED)

DSEI 2x30
DSEI 2x31

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

V_{RSM}	V_{RRM}	Type
V	V	
1200	1200	DSEI 2x 30-12P
1200	1200	DSEI 2x 31-12P



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

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

Symbol	Conditions	Characteristic Values (per diode)	
		typ.	max.
I_R	$T_{VJ} = 25^\circ C$ $V_R = V_{RRM}$		750 μA
	$T_{VJ} = 25^\circ C$ $V_R = 0.8 \cdot V_{RRM}$		250 μA
	$T_{VJ} = 125^\circ C$ $V_R = 0.8 \cdot V_{RRM}$		7 mA
V_F	$I_F = 30 A$; $T_{VJ} = 150^\circ C$ $T_{VJ} = 25^\circ C$		2.20 V
			2.55 V
V_{T0}	For power-loss calculations only		1.65 V
r_T	$T_{VJ} = T_{VJM}$		18.2 $m\Omega$
R_{thJC}			1.25 K/W
R_{thCK}	0.05		K/W
t_{rr}	$I_F = 1 A$; $-di/dt = 100 A/\mu s$ $V_R = 30 V$; $T_{VJ} = 25^\circ C$	40	50 ns
I_{RM}	$V_R = 540 V$; $I_F = 30 A$; $-di_F/dt = 240 A/\mu s$ $L \leq 0.05 \mu H$; $T_{VJ} = 100^\circ C$	16	18 A
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/s^2

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

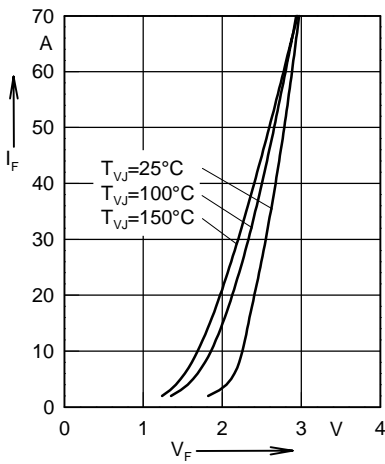


Fig. 1 Forward current versus voltage drop.

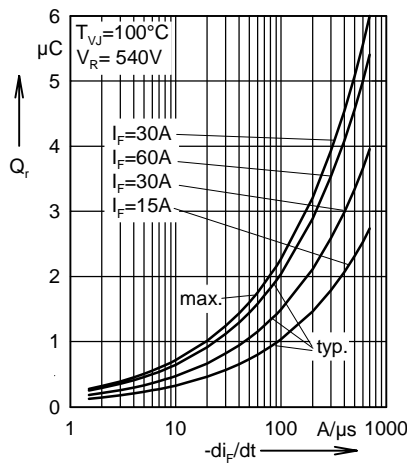


Fig. 2 Recovery charge versus $-di_F/dt$.

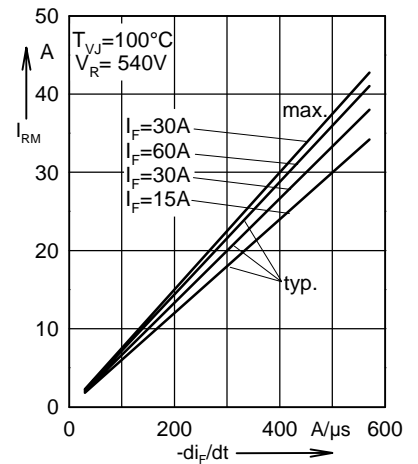


Fig. 3 Peak reverse current versus $-di_F/dt$.

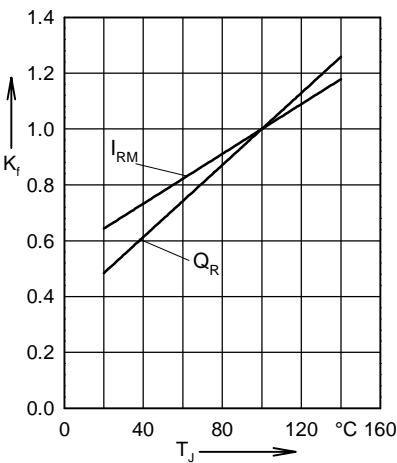


Fig. 4 Dynamic parameters versus junction temperature.

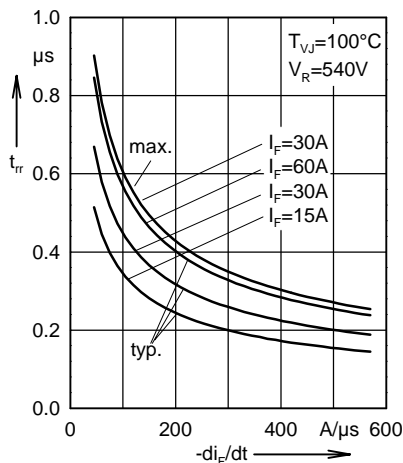


Fig. 5 Recovery time versus $-di_F/dt$.

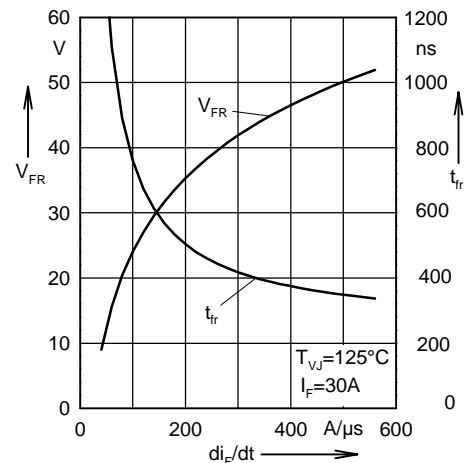


Fig. 6 Peak forward voltage versus di_F/dt .

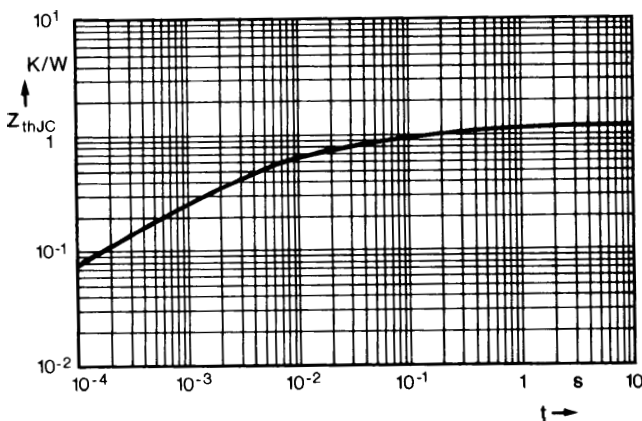


Fig. 7 Transient thermal impedance junction to case.

