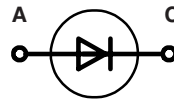
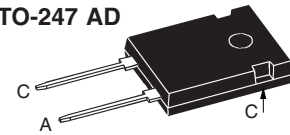
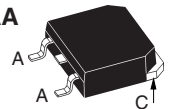


Fast Recovery Epitaxial Diode (FRED)

V_{RRM} = 600 V
I_{FAVM} = 60 A
t_{rr} = 35 ns

V _{RSM}	V _{RRM}	Type
V	V	
600	600	DSEI 60-06A
600	600	DSEI 60-06AT


TO-247 AD

TO-268 AA (AT Type)


A = Anode, C = Cathode

Symbol	Conditions	Maximum Ratings	
I _{FRMS}	T _{VJ} = T _{VJM}	100	A
I _{FAVM} ①	T _C = 70°C; rectangular, d = 0.5	60	A
I _{FRM}	t _p < 10 µs; rep. rating, pulse width limited by T _{VJM}	800	A
I _{FSM}	T _{VJ} = 45°C; t = 10 ms (50 Hz), sine	550	A
	t = 8.3 ms (60 Hz), sine	600	A
I ² t	T _{VJ} = 150°C; t = 10 ms (50 Hz), sine	480	A
	t = 8.3 ms (60 Hz), sine	520	A
I ² t	T _{VJ} = 45°C t = 10 ms (50 Hz), sine	1510	A ² s
	t = 8.3 ms (60 Hz), sine	1490	A ² s
I ² t	T _{VJ} = 150°C; t = 10 ms (50 Hz), sine	1150	A ² s
	t = 8.3 ms (60 Hz), sine	1120	A ² s
T _{VJ}		-40...+150	°C
T _{VJM}		150	°C
T _{stg}		-40...+150	°C
P _{tot}	T _C = 25°C	166	W
M _d	Mounting torque	0.8...1.2	Nm
Weight		6	g

Features

- International standard package JEDEC TO-247 AD
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low I_{RM}-values
- Soft recovery behaviour
- Epoxy meets UL 94V-0

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

- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses
- Operating at lower temperature or space saving by reduced cooling

Symbol	Conditions	Characteristic Values	
		typ.	max.
I _R	T _{VJ} = 25°C; V _R = V _{RRM}		200 µA
	T _{VJ} = 25°C; V _R = 0.8 • V _{RRM}		100 µA
	T _{VJ} = 125°C; V _R = 0.8 • V _{RRM}		14 mA
V _F	I _F = 16 A; T _{VJ} = 150°C		1.5 V
	T _{VJ} = 25°C		1.8 V
V _{T0}	For power-loss calculations only		1.13 V
r _T	T _{VJ} = T _{VJM}		4.7 mΩ
R _{thJC}			0.75 K/W
R _{thCH}	(version A)	0.25	K/W
t _{rr}	I _F = 1 A; -di/dt = 200 A/µs; V _R = 30 V; T _{VJ} = 25°C	35	50 ns
I _{RM}	V _R = 350 V; I _F = 60 A; -di _p /dt = 480 A/µs L ≤ 0.05 µH; T _{VJ} = 100°C	4	4.4 A

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

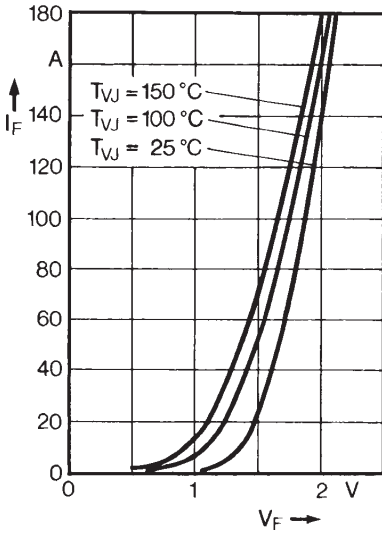


Fig. 1 Forward current versus voltage drop.

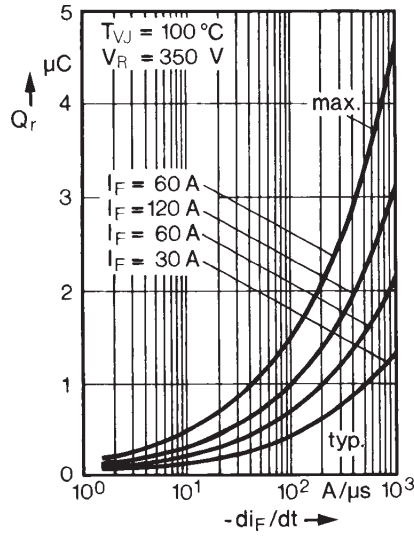


Fig. 2 Recovery charge versus $-di_F/dt$.

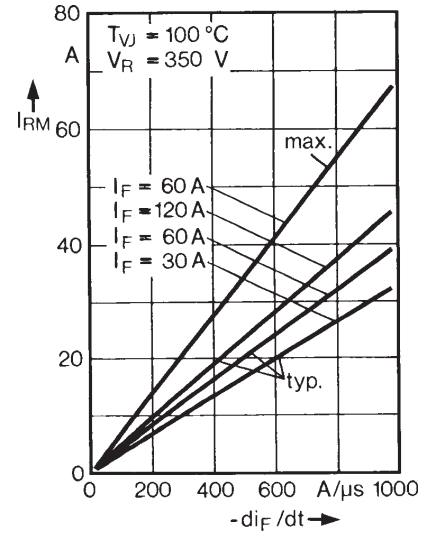


Fig. 3 Peak reverse current versus $-di_F/dt$.

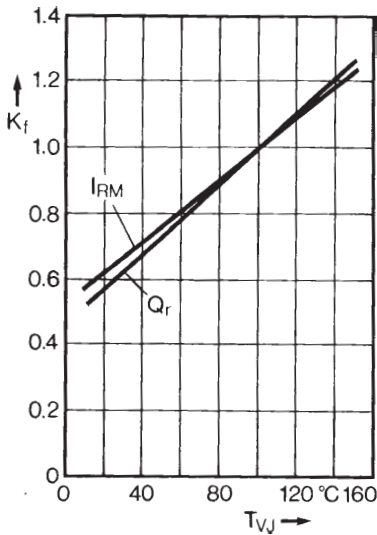


Fig. 4 Dynamic parameters versus junction temperature.

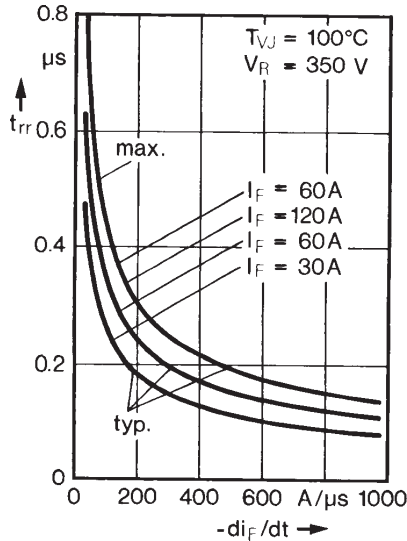


Fig. 5 Recovery time versus $-di_F/dt$.

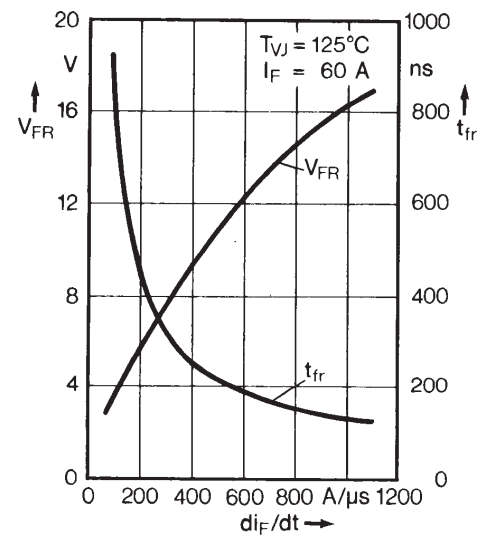


Fig. 6 Peak forward voltage versus di_F/dt .

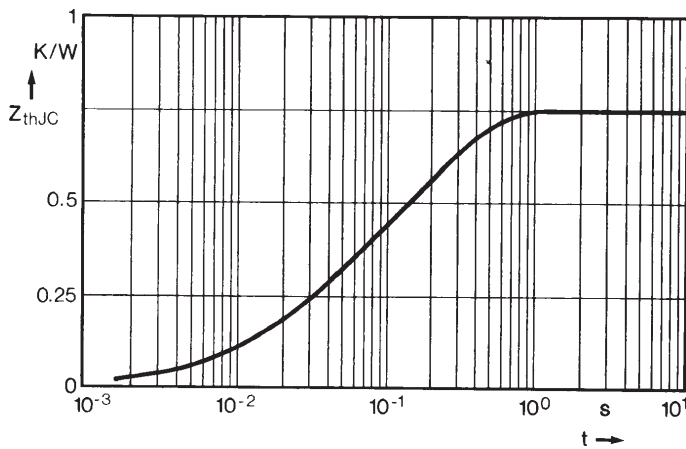
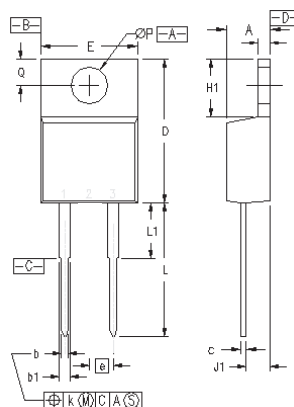


Fig. 7 Transient thermal impedance junction to case.

Dimensions



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.32	4.83	0.170	0.190
b	0.64	1.02	0.025	0.040
b1	1.15	1.65	0.045	0.065
c	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	2.54 BSC		0.100 BSC	
F	1.14	1.40	0.045	0.055
H1	5.85	6.85	0.230	0.270
J1	2.29	2.79	0.090	0.110
k	0	0.38	0	0.015
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
ØP	3.53	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125