

Super Fast Recovery Diode

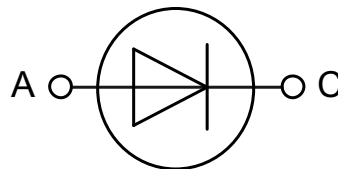
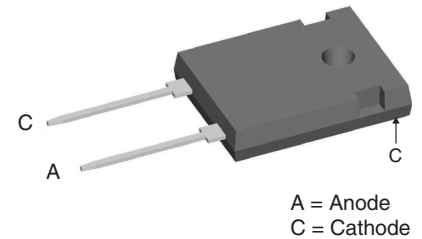
preliminary data

$$I_{FAVM} = 63 \text{ A}$$

$$V_{RRM} = 1800 \text{ V}$$

$$t_{rr} = 40 \text{ ns}$$

Part number
DSDI60-18A



Features / Advantages:

- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low I_{RM} values
- Soft recovery behaviour
- 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

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

Package: TO-247 AD

- International standard package JEDEC TO-247 AD
- Creepage distance between leads 8.5 mm
- Epoxy meets UL 94V-0

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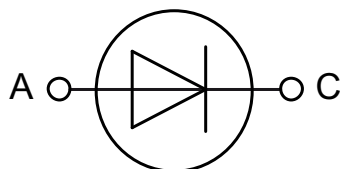
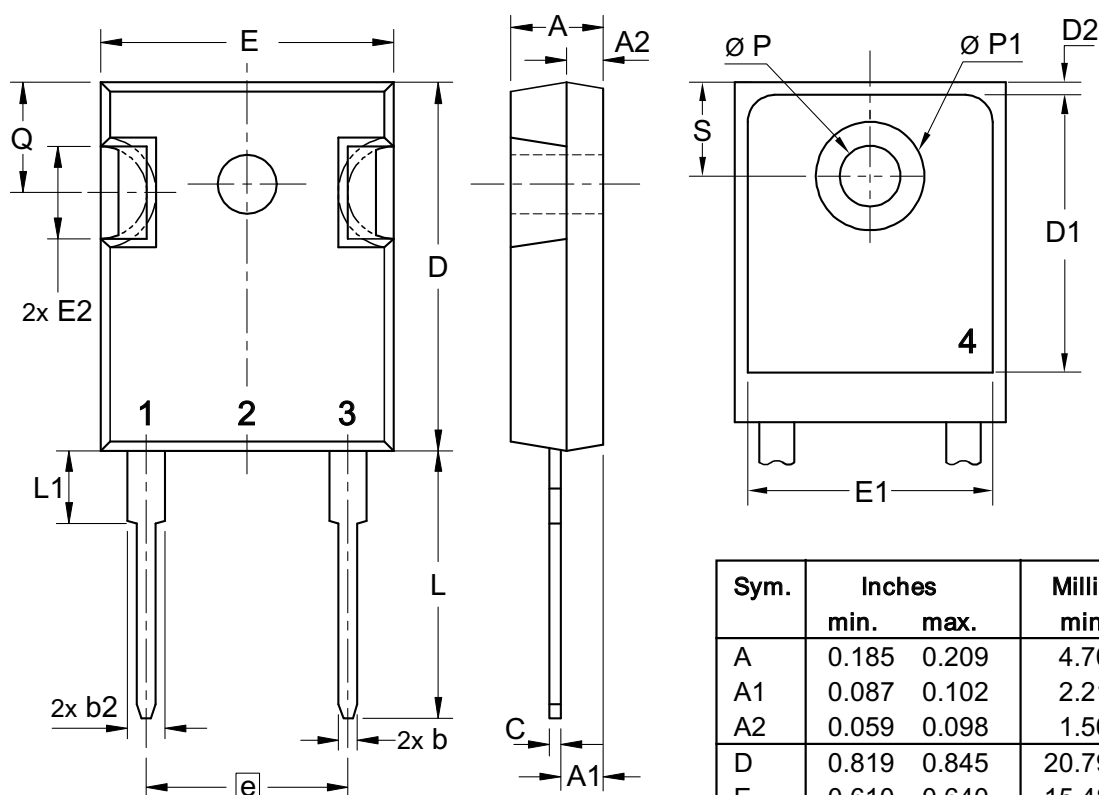
preliminary data

Diode				Ratings			
Symbol	Definitions	Conditions		min.	typ.	max.	
V_{RRM}	max. repetitive reverse voltage					1800	V
V_{RSM}	max. non-repetitive reverse voltage					1800	V
I_{FRMS}	RMS forward current	$T_{VJ} = 150^{\circ}\text{C}$				100	A
I_{FAVM} ①	max. average forward current	rectangular, d = 0.5 $T_C = 60^{\circ}\text{C}$				63	A
I_{FRM}	max. repetitive forward current	$t_p < 10 \mu\text{s}$ rep. rating, pulse width limited by T_{VJM}				800	A
I_{FSM}	max. surge forward current	t = 10 ms (50 Hz), sine	$T_{VJ} = 45^{\circ}\text{C}$			500	A
		t = 8.3 ms (60 Hz), sine				540	A
		t = 10 ms (50 Hz), sine	$T_{VJ} = 150^{\circ}\text{C}$			450	A
		t = 8.3 ms (60 Hz), sine				480	A
I^2t	I^2t value for fusing	t = 10 ms (50 Hz), sine	$T_{VJ} = 45^{\circ}\text{C}$			1250	A ² s
		t = 8.3 ms (60 Hz), sine				1200	A ² s
		t = 10 ms (50 Hz), sine	$T_{VJ} = 150^{\circ}\text{C}$			1000	A ² s
		t = 8.3 ms (60 Hz), sine				950	A ² s
I_R	reverse current	$V_R = V_{RRM}$	$T_{VJ} = 25^{\circ}\text{C}$		1	2	mA
		$V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 25^{\circ}\text{C}$		0.5		mA
		$V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 125^{\circ}\text{C}$		3		mA
V_F	forward voltage	$I_F = 70 \text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$		2.6		V
			$T_{VJ} = 25^{\circ}\text{C}$			4.1	V
V_{T0}	threshold voltage	for power-loss calculations only	$T_{VJ} = 150^{\circ}\text{C}$			1.9	V
r_T	slope resistance					10	mΩ
P_{tot}	total power dissipation		$T_{VJ} = 25^{\circ}\text{C}$			416	W
R_{thJC}	thermal resistance junction to case				0.25	0.4	K/W
R_{thCH}	thermal resistance junction to heatsink						K/W
t_{rr}	reverse recovery time	$I_F = 1 \text{ A}$; $-di/dt = 200 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$		40		ns
t_{rr}	reverse recovery time	$I_F = 70 \text{ A}$; $-di_F/dt = 500 \text{ A}/\mu\text{s}$	$T_{VJ} = 25^{\circ}\text{C}$		300		ns
I_{RM}	max. reverse recovery current	$V_R = 1000 \text{ V}$			60		A
t_{rr}	reverse recovery time	$I_F = 70 \text{ A}$; $-di_F/dt = 500 \text{ A}/\mu\text{s}$	$T_{VJ} = 125^{\circ}\text{C}$		400		ns
I_{RM}	max. reverse recovery current	$V_R = 1000 \text{ V}$			85		A

 ① I_{FAVM} rating includes reverse blocking losses at T_{VJM} , $V_R = 0.8 V_{RRM}$, duty cycle d = 0.5

preliminary data

Package TO-247 AD			Ratings		
Symbol	Definitions	Conditions	min.	typ.	max.
I_{RMS}	RMS current				70 A
T_{VJ}	virtual junction temperature		-40		150 °C
T_{op}	operation temperature		-40		125 °C
T_{stg}	storage temperature		-40		150 °C
Weight				6	g
M_D	mounting torque		0.8		1.2 Nm
F_c	mounting force with clip		20		120 N



Sym.	Inches		Millimeter	
	min.	max.	min.	max.
A	0.185	0.209	4.70	5.30
A1	0.087	0.102	2.21	2.59
A2	0.059	0.098	1.50	2.49
D	0.819	0.845	20.79	21.45
E	0.610	0.640	15.48	16.24
E2	0.170	0.216	4.31	5.48
e	0.430 BSC		10.92 BSC	
L	0.780	0.800	19.80	20.30
L1	-	0.177	-	4.49
Ø P	0.140	0.144	3.55	3.65
Q	0.212	0.244	5.38	6.19
S	0.242 BSC		6.14 BSC	
b	0.039	0.055	0.99	1.40
b2	0.065	0.094	1.65	2.39
b4	0.102	0.135	2.59	3.43
c	0.015	0.035	0.38	0.89
D1	0.515	-	13.07	-
D2	0.020	0.053	0.51	1.35
E1	0.530	-	13.45	-
Ø P1	-	0.29	-	7.39