

# Super Fast Recovery Diode

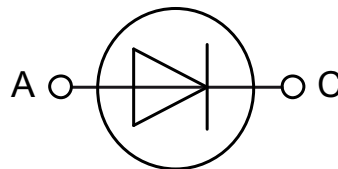
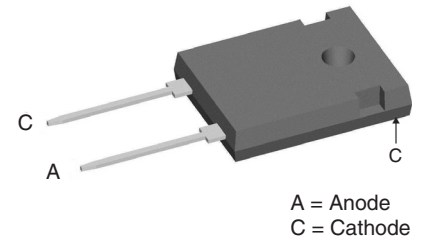
preliminary data

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

$$V_{RRM} = 1400 \text{ V}$$

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

**Part number**  
DSDI60-14A



### 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

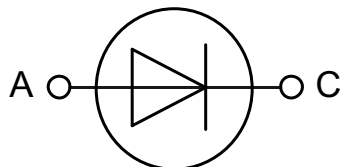
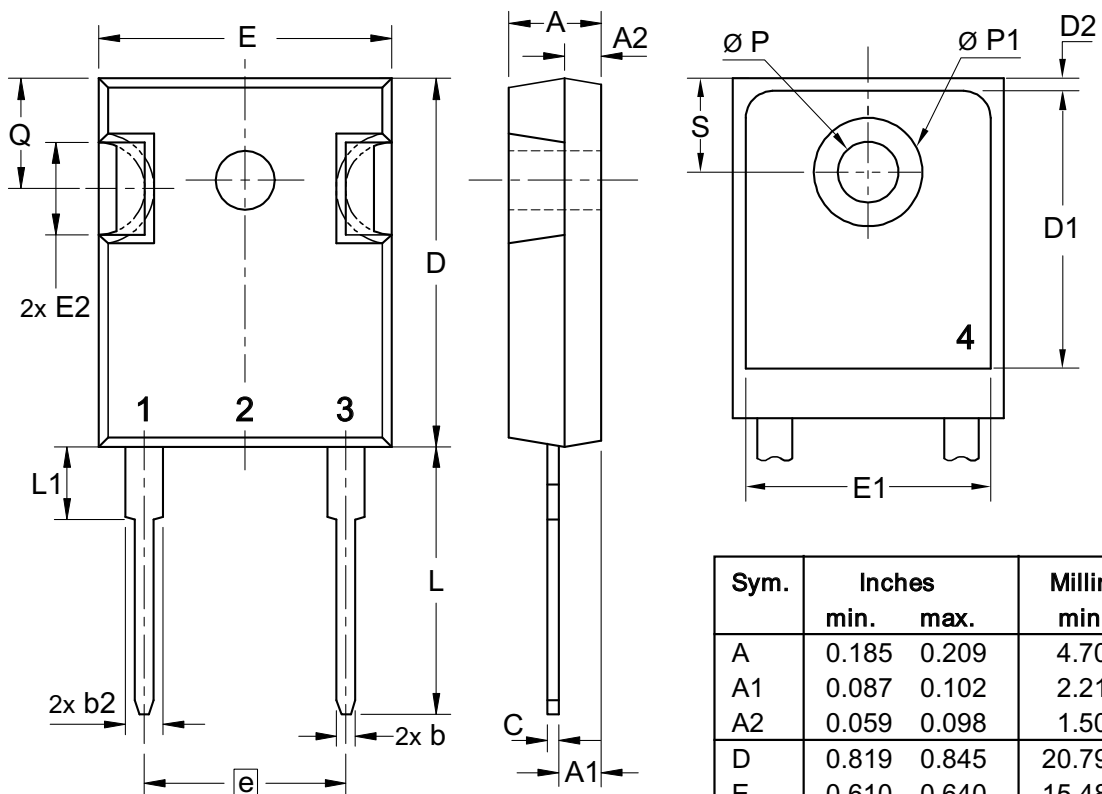
Diode				Ratings		
Symbol	Definitions	Conditions	min.	typ.	max.	
$V_{RRM}$	max. repetitive reverse voltage				1400	V
$V_{RSM}$	max. non-repetitive reverse voltage				1400	V
$I_{FRMS}$	RMS forward current		$T_{VJ} = 150^{\circ}\text{C}$		100	A
$I_{FAVM}$ ①	max. average forward current	rectangular, d = 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 <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine			1200	A <sup>2</sup> s
		t = 10 ms (50 Hz), sine	$T_{VJ} = 150^{\circ}\text{C}$		1000	A <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine			950	A <sup>2</sup> 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
$V_{TO}$	threshold voltage		$T_{VJ} = 150^{\circ}\text{C}$		1.9	V
$r_T$	slope resistance	for power-loss calculations only	$T_{VJ} = 150^{\circ}\text{C}$		10	mΩ
$P_{tot}$	total power dissipation		$T_{VJ} = 25^{\circ}\text{C}$		416	W
$R_{thJC}$	thermal resistance junction to case				0.4	K/W
$R_{thCH}$	thermal resistance junction to heatsink			0.25		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
<b>Weight</b>				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