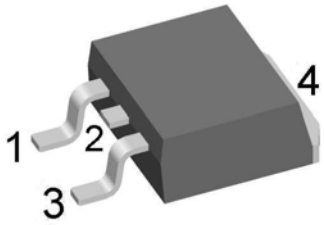
High Efficiency Standard Rectifier

V_{RRM}	=	800V
I_{FAV}	=	40A
V_F	=	1.26V

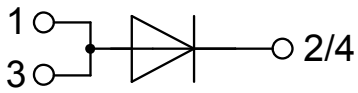
Single Diode

Part number

DLA40IM800PC



Backside: cathode



Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very low forward voltage drop
- Improved thermal behaviour

Applications:

- Diode for main rectification
- For single and three phase bridge configurations

Package: TO-263 (D2Pak)

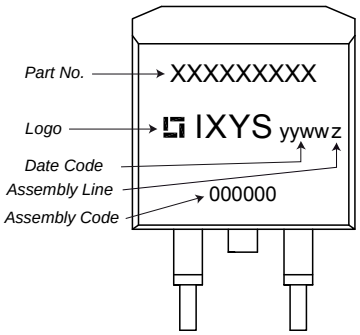
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			900	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			800	V
I_R	*reverse current, drain current*	V_R = 800 V	T_{VJ} = 25°C			10	µA
		V_R = 800 V	T_{VJ} = 150°C			0.05	mA
V_F	*forward voltage drop*	I_F = 40 A	T_{VJ} = 25°C			1.30	V
		I_F = 80 A				1.56	V
		I_F = 40 A	T_{VJ} = 150 °C			1.26	V
		I_F = 80 A				1.65	V
I_{FAV}	*average forward current*	T_C = 120°C rectangular	T_{VJ} = 175°C			40	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.85	V
r_F	*slope resistance* }					10	mΩ
R_{thJC}	*thermal resistance junction to case*					0.8	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			185	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			300	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			325	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			255	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			275	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			450	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			440	A²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			325	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			315	A²s
C_J	*junction capacitance*	V_R = 400 V f = 1 MHz	T_{VJ} = 25°C		10		pF

Package TO-263 (D2Pak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal [1]			35	A
T_{stg}	*storage temperature*		-55		150	°C
T_{VJ}	*virtual junction temperature*		-55		175	°C
Weight				2		g
F_C	*mounting force with clip*		20		60	N

[1] I_{RMS} is typically limited by the pin-to-chip resistance (1); or by the current capability of the chip (2). In case of (1) and a product with multiple pins for one chip-potential, the current capability can be increased by connecting the pins as one contact.

Product Marking



Part number

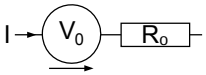
D = Diode
L = High Efficiency Standard Rectifier
A = (up to 1200V)
40 = Current Rating [A]
IM = Single Diode
800 = Reverse Voltage [V]
PC = TO-263AB (D2Pak) (2)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DLA40IM800PC	DLA40IM800PC	Tape & Reel	800	509995

Similar Part	Package	Voltage class
DSI30-08AS	TO-263AB (D2Pak) (2)	800
DSI30-12AS	TO-263AB (D2Pak) (2)	1200
DSI30-16AS	TO-263AB (D2Pak) (2)	1600

Equivalent Circuits for Simulation

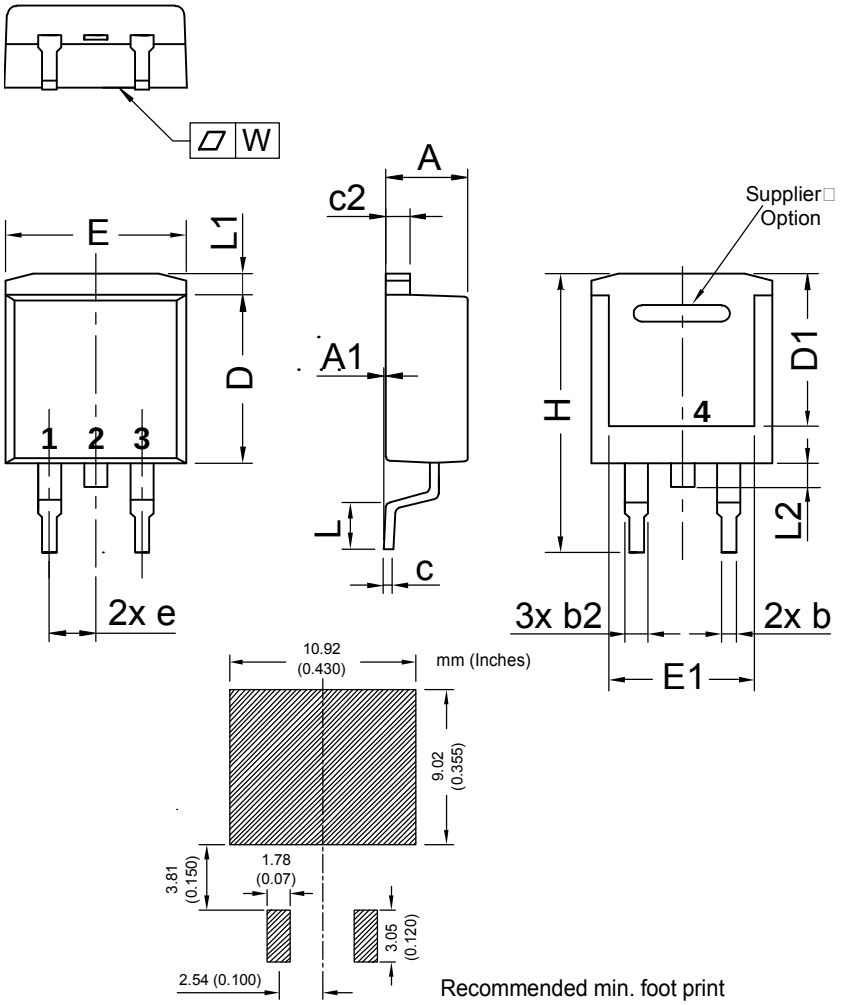
** on die level* T_{VJ} = 175°C



Rectifier

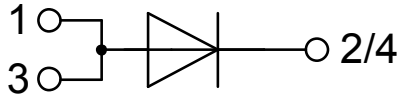
$V_{0\,max}$	*threshold voltage*	0.85	V
$R_{0\,max}$	*slope resistance **	6.8	mΩ

Outlines TO-263 (D2Pak)



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2,54 BSC		0,100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

All dimensions conform with and/or within JEDEC standard.



Rectifier

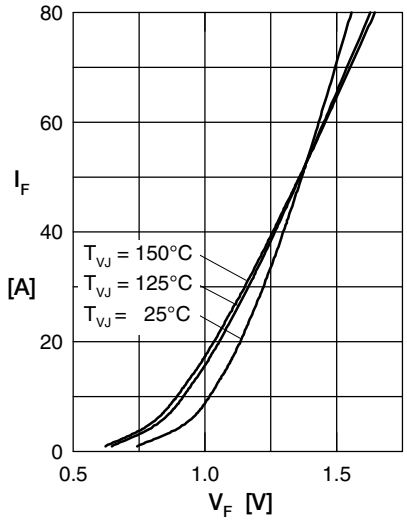


Fig. 1 Forward current versus voltage drop

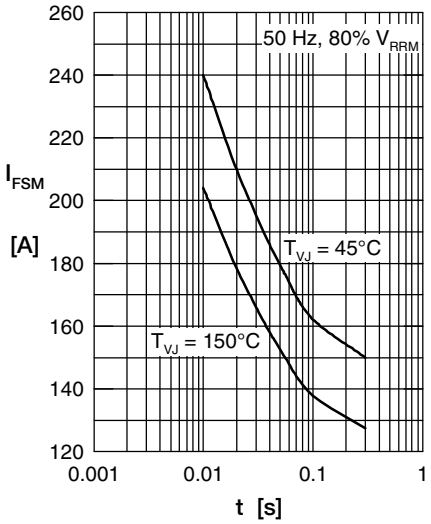


Fig. 2 Surge overload current

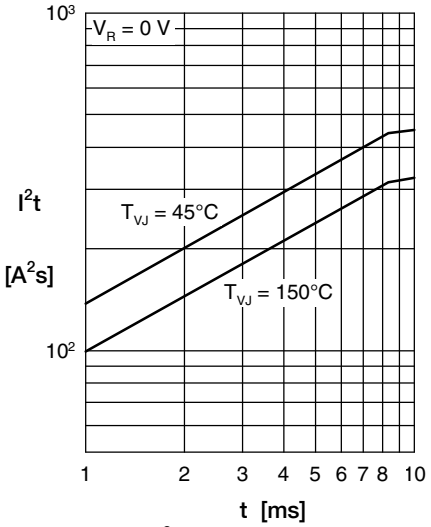


Fig. 3 I^2t versus time

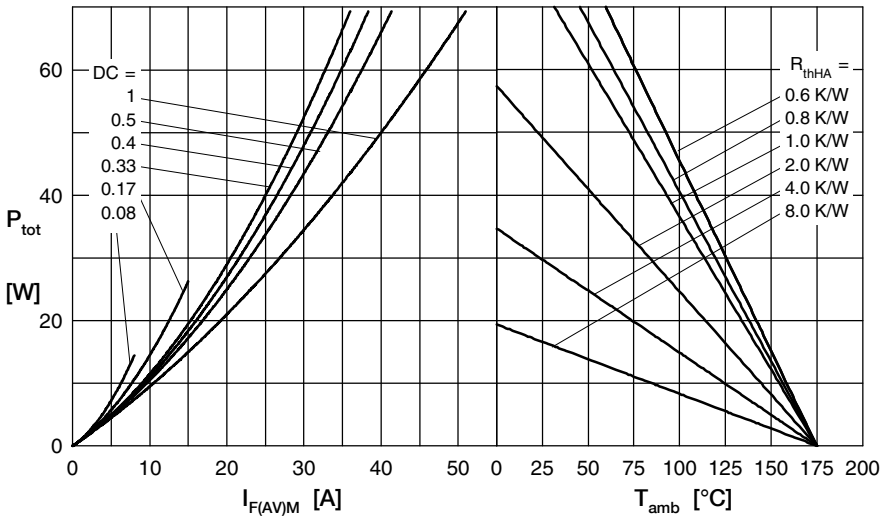


Fig. 4 Power dissipation versus direct output current and ambient temperature

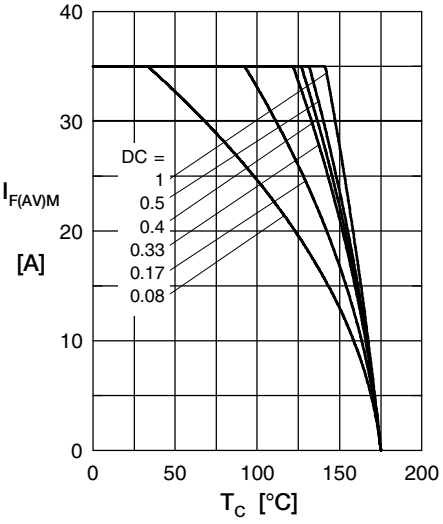


Fig. 5 Max. forward current vs. case temperature

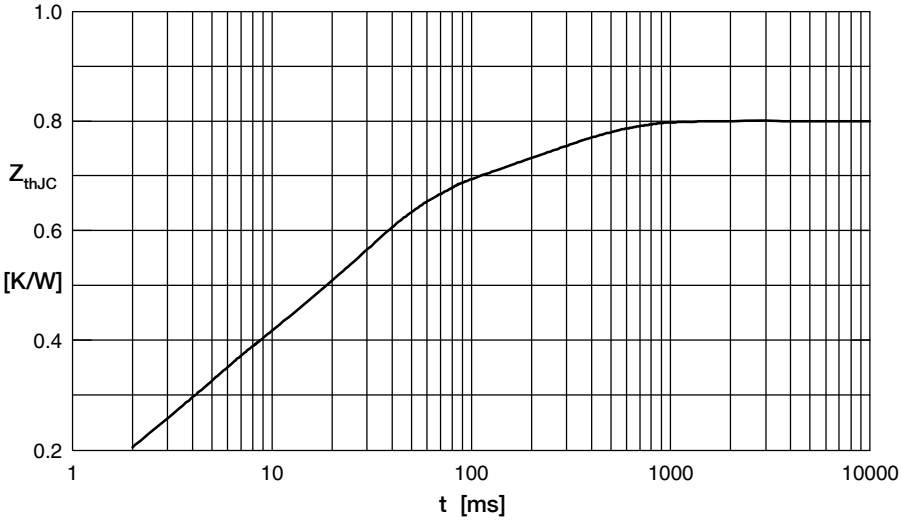


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.04	0.0004
2	0.07	0.002
3	0.19	0.003
4	0.35	0.024
5	0.15	0.25