Low Voltage Standard Rectifier

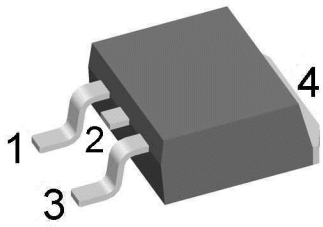
V_{RRM}	=	800 V
I_{FAV}	=	20 A
V_F	=	1.22 V

Single Diode

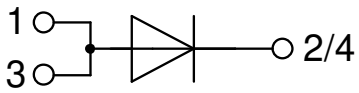
Part number

DLA20IM800PC

Marking on Product: DLA20IM800PC



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

Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

© 2020 IXYS all rights reserved

Rectifier

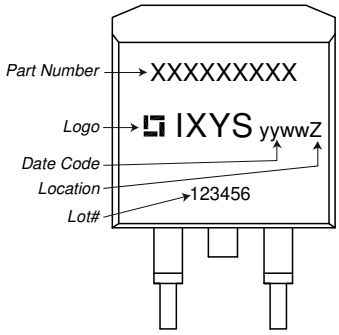
Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			900	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			800	V
I_R	*reverse current*	V_R = 800 V	T_{VJ} = 25°C			5	µA
		V_R = 800 V	T_{VJ} = 150°C			0.05	mA
V_F	*forward voltage drop*	I_F = 20 A	T_{VJ} = 25°C			1.25	V
		I_F = 40 A				1.49	V
		I_F = 20 A	T_{VJ} = 150°C			1.22	V
		I_F = 40 A				1.54	V
I_{FAV}	*average forward current*	T_C = 140°C	T_{VJ} = 175°C			20	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.88	V
r_F	*slope resistance* }					17	mΩ
R_{thJC}	*thermal resistance junction to case*					1	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			150	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			200	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			215	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			170	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			185	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			200	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			190	A²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			145	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			140	A²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		7		pF

© 2020 IXYS all rights reserved

Package TO-263 (D2Pak)			Ratings			
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal [1)]			35	A
T_{VJ}	*virtual junction temperature*		-55		175	°C
T_{op}	*operation temperature*		-55		150	°C
T_{stg}	*storage temperature*		-55		150	°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



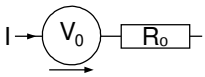
Part description

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

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DLA20IM800PC-TRL	DLA20IM800PC	Tape & Reel	800	506475
Alternative	DLA20IM800PC-TUB	DLA20IM800PC	Tube	50	506628

Equivalent Circuits for Simulation

** on die level* $T_{VJ} = 175°C$

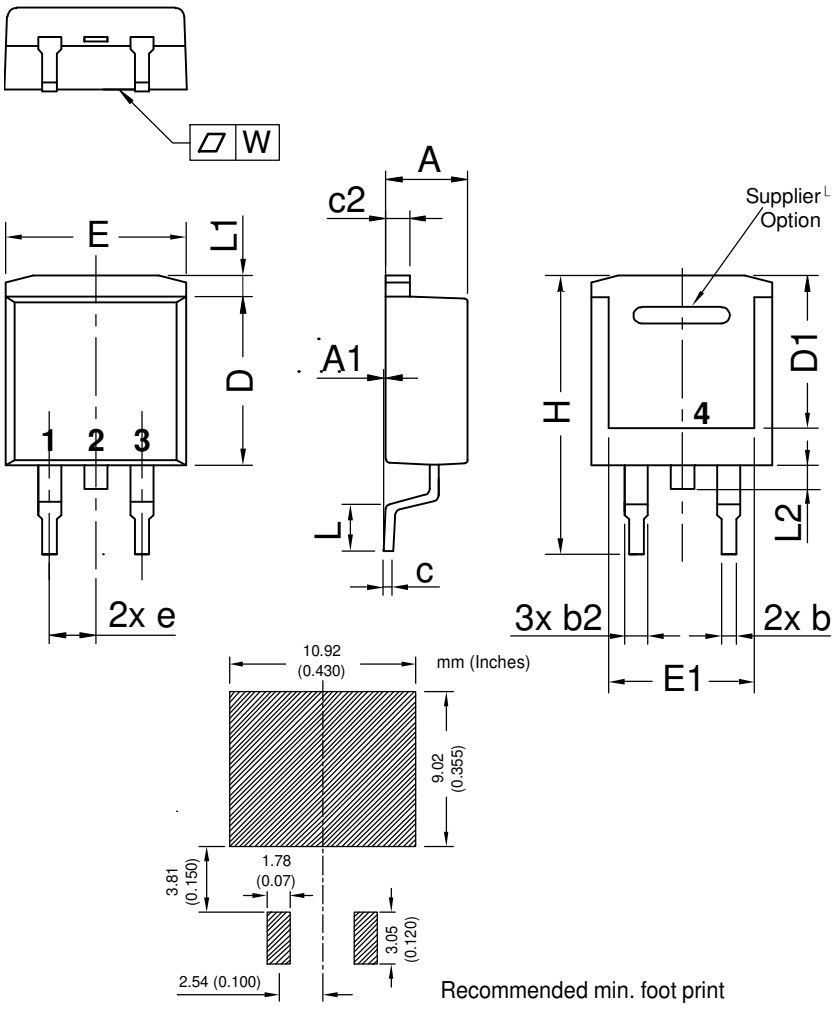


Rectifier

$V_{0\,max}$	*threshold voltage*	0.88	V
$R_{0\,max}$	*slope resistance **	13	mΩ

© 2020 IXYS all rights reserved

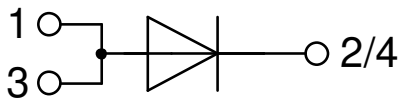
Outlines TO-263 (D2Pak)



Recommended min. foot print

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.



© 2020 IXYS all rights reserved

Rectifier

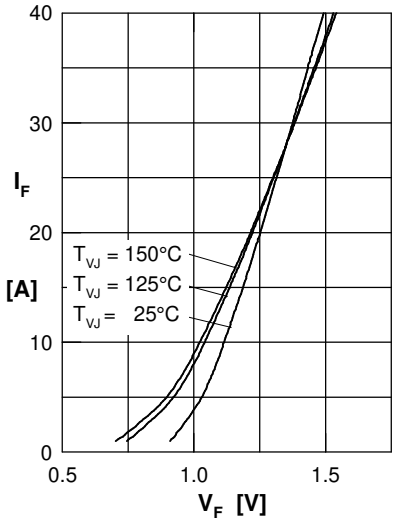


Fig. 1 Forward current versus voltage drop

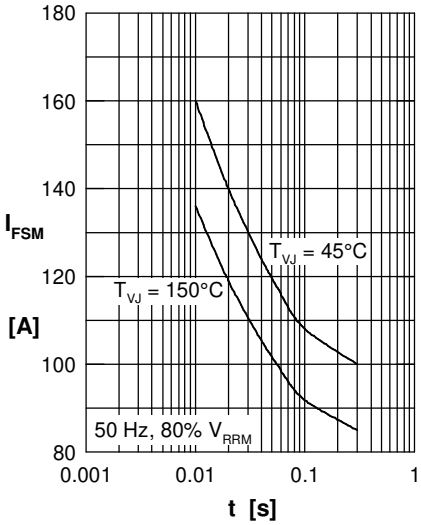


Fig. 2 Surge overload current

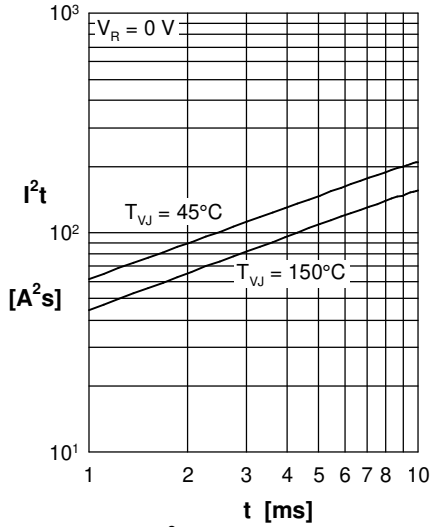


Fig. 3 I^2t versus time

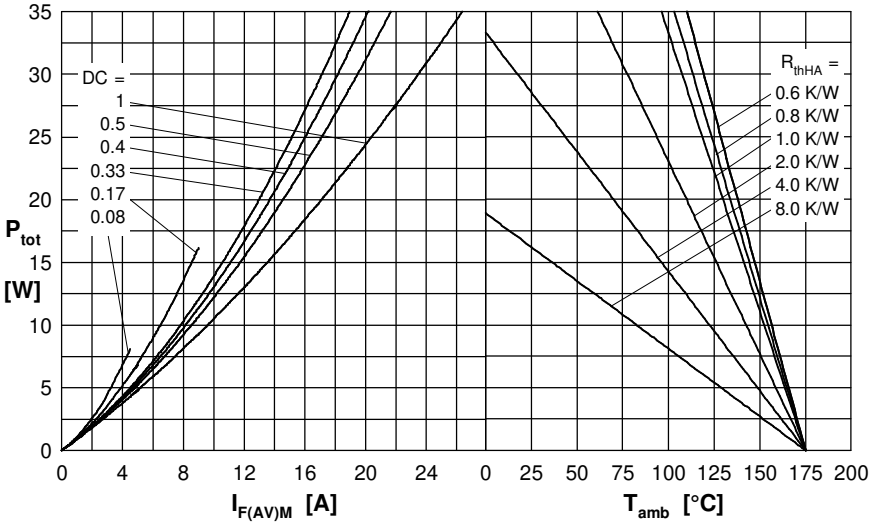


Fig. 4 Power dissipation versus direct output current and ambient temperature

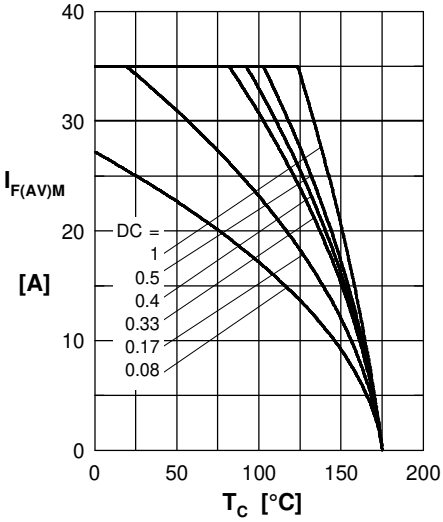


Fig. 5 Max. forward current vs. case temperature

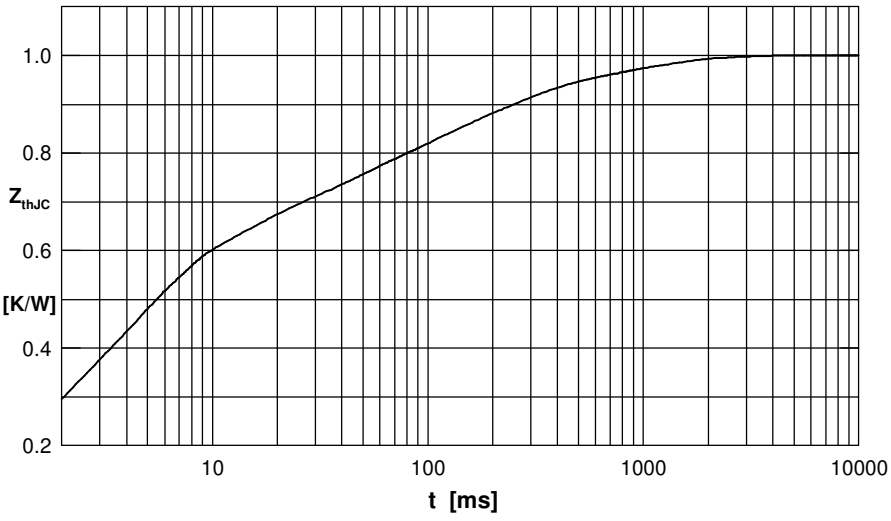


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.51	0.0035
2	0.06	0.0003
3	0.14	0.0250
4	0.09	0.8000
5	0.20	0.1400

© 2020 IXYS all rights reserved