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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# High Efficiency Standard Rectifier

$$V_{RRM} = 2 \times 800 \text{ V}$$

$$I_{FAV} = 5 \text{ A}$$

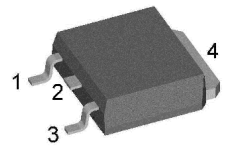
$$V_F = 1.12 \text{ V}$$

Phase leg

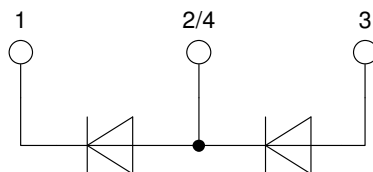
Part number

**DLA5P800UC**

Marking on Product: M5RLUP



Backside: anode/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-252 (DPak)

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

## Terms .Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact the sales office, which is responsible for you.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the product in aviation, in health or live endangering or life support applications, please notify. For any such application we urgently recommend

- to perform joint risk and quality assessments;

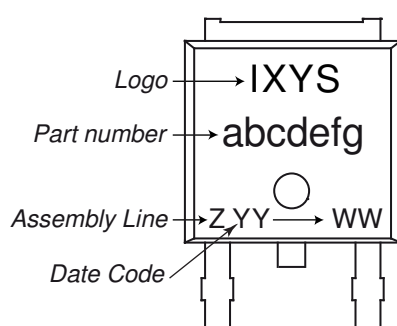
- the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
$V_{RSM}$	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				900	V
$V_{RRM}$	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				800	V
$I_R$	reverse current	$V_R = 800\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			5	$\mu\text{A}$
		$V_R = 800\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			0.05	mA
$V_F$	forward voltage drop	$I_F = 5\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.18	V
		$I_F = 10\text{ A}$				1.38	V
		$I_F = 5\text{ A}$	$T_{VJ} = 150^{\circ}\text{C}$			1.12	V
		$I_F = 10\text{ A}$				1.41	V
$I_{FAV}$	average forward current	$T_C = 155^{\circ}\text{C}$ 180° sine	$T_{VJ} = 175^{\circ}\text{C}$			5	A
$V_{F0}$	threshold voltage	} for power loss calculation only	$T_{VJ} = 175^{\circ}\text{C}$			0.82	V
$r_F$	slope resistance					58	m $\Omega$
$R_{thJC}$	thermal resistance junction to case					2.5	K/W
$R_{thCH}$	thermal resistance case to heatsink				0.5		K/W
$P_{tot}$	total power dissipation		$T_C = 25^{\circ}\text{C}$			60	W
$I_{FSM}$	max. forward surge current	$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 45^{\circ}\text{C}$			70	A
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			76	A
		$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 150^{\circ}\text{C}$			60	A
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			64	A
$I^2t$	value for fusing	$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 45^{\circ}\text{C}$			25	A <sup>2</sup> s
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			24	A <sup>2</sup> s
		$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 150^{\circ}\text{C}$			18	A <sup>2</sup> s
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			17	A <sup>2</sup> s
$C_J$	junction capacitance	$V_R = 400\text{ V; } f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		1		pF

Package TO-252 (DPak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
$I_{RMS}$	RMS current	per terminal			20	A
$T_{VJ}$	virtual junction temperature		-55		175	°C
$T_{op}$	operation temperature		-55		150	°C
$T_{stg}$	storage temperature		-55		150	°C
Weight				0.3		g
$F_c$	mounting force with clip		20		60	N

## Product Marking



## Part description

D = Diode  
 L = High Efficiency Standard Rectifier  
 A = (up to 1200V)  
 5 = Current Rating [A]  
 P = Phase leg  
 800 = Reverse Voltage [V]  
 UC = TO-252AA (DPak)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DLA5P800UC	M5RLUP	Tape & Reel	2500	511574

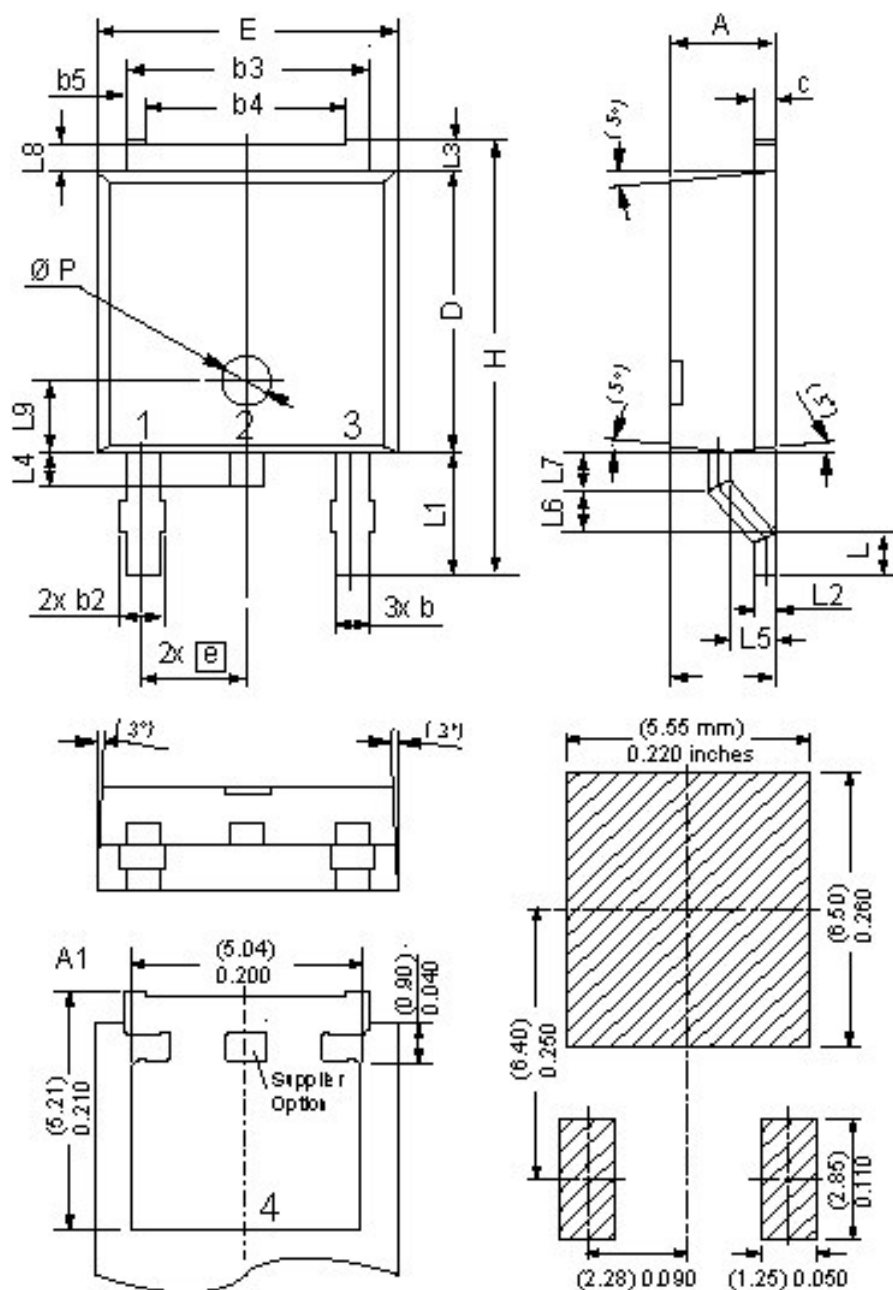
## Equivalent Circuits for Simulation

\* on die level

$T_{VJ} = 175\text{ °C}$

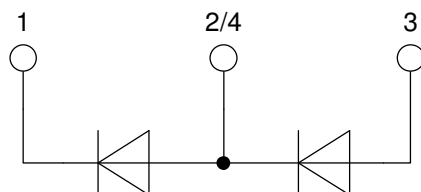
		Rectifier	
$V_{0\text{ max}}$	threshold voltage	0.82	V
$R_{0\text{ max}}$	slope resistance *	55	mΩ



**Outlines TO-252 (DPak)**


Dim	Millimeters		Inches	
	min	max	min	max
A	2.20	2.40	0.087	0.094
A1	2.10	2.50	0.083	0.098
b	0.66	0.86	0.026	0.034
b2	-	0.96	-	0.038
b3	5.04	5.64	0.198	0.222
b4	4.34 BSC		0.171 BSC	
b5	0.50 BSC		0.020 BSC	
c	0.40	0.86	0.016	0.034
D	5.90	6.30	0.232	0.248
E	6.40	6.80	0.252	0.268
e	2.10	2.50	0.083	0.098
H	9.20	10.10	0.362	0.398
L	0.55	1.28	0.022	0.050
L1	2.50	2.90	0.098	0.114
L2	0.40	0.60	0.016	0.024
L3	0.50	0.90	0.020	0.035
L4	0.60	1.00	0.024	0.039
L5	0.82	1.22	0.032	0.048
L6	0.79	0.99	0.031	0.039
L7	0.81	1.01	0.032	0.040
L8	0.40	0.80	0.016	0.031
L9	1.50 BSC		0.059 BSC	
Ø P	1.00 BSC		0.039 BSC	

Recommended  
min. foot print



## Rectifier

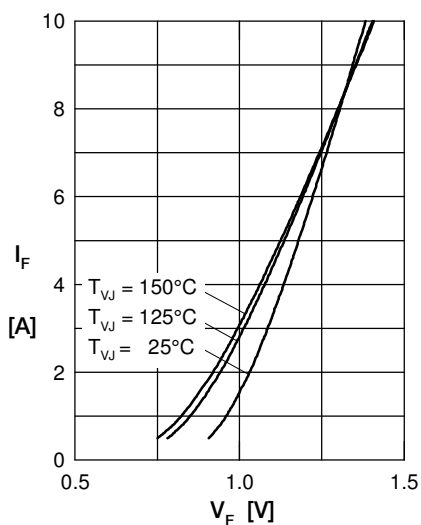


Fig. 1 Forward current versus voltage drop

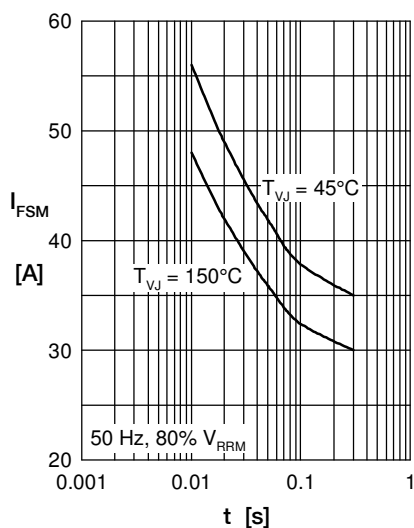


Fig. 2 Surge overload current

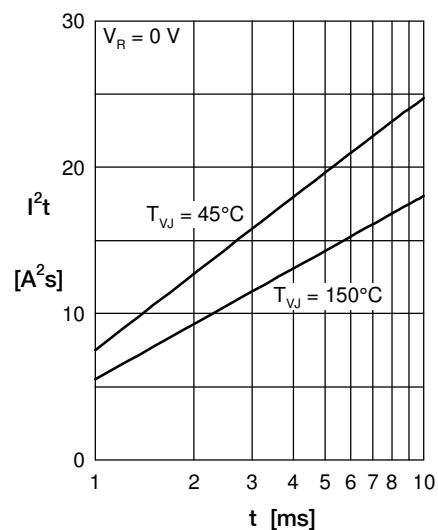


Fig. 3  $I^2t$  versus time

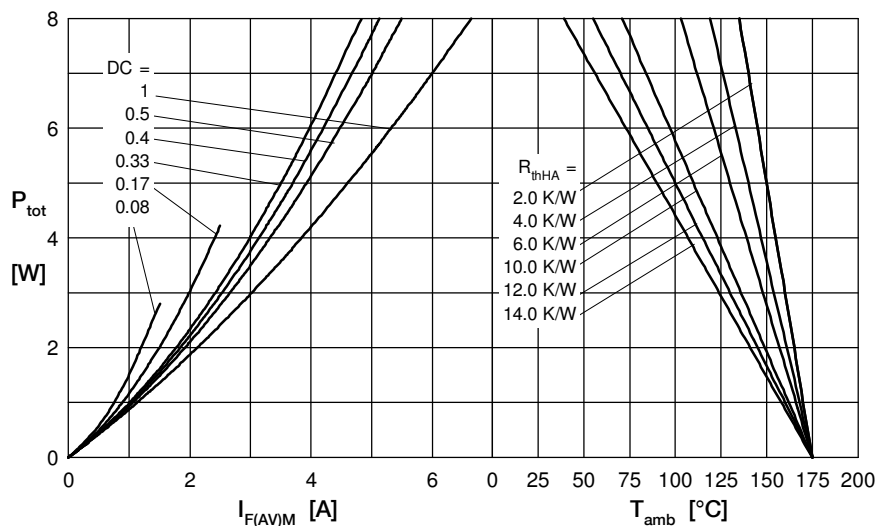


Fig. 4 Power dissipation versus direct output current and ambient temperature

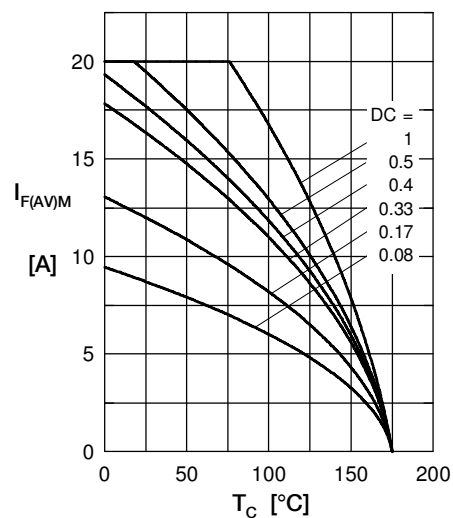


Fig. 5 Max. forward current vs. case temperature

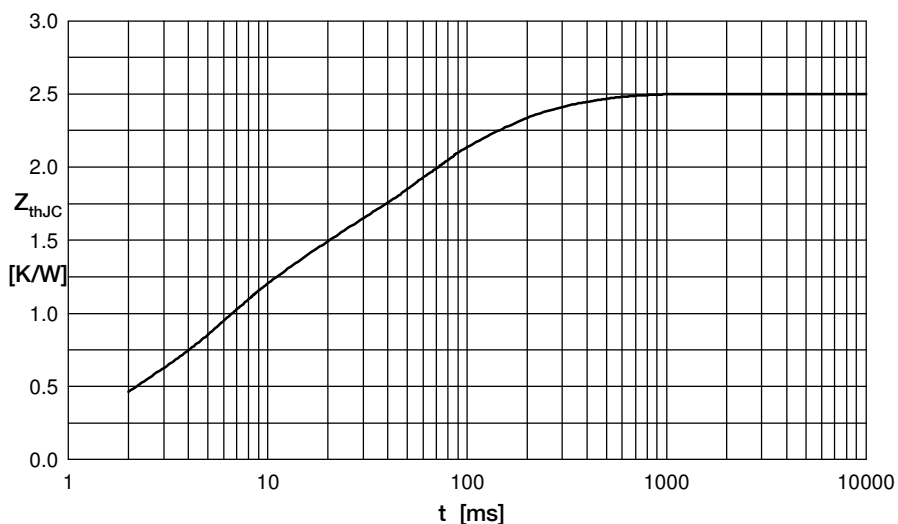


Fig. 6 Transient thermal impedance junction to case

Constants for  $Z_{thJC}$  calculation:

i	$R_{thi}$ (K/W)	$t_i$ (s)
1	1.1	0.005
2	0.06	0.0003
3	0.2	0.045
4	0.4	0.2
5	0.74	0.05