Standard Rectifier

V_{RRM}	=	800 V
I_{FAV}	=	30 A
V_{F}	=	1.25 V

Single Diode

Part number

DSI30-08AS

Backside: cathode

1 ○
3 ○ —▷|— ○ 2/4
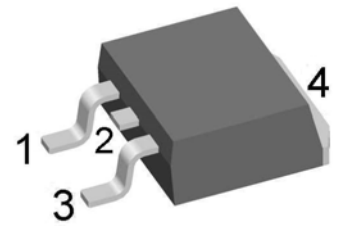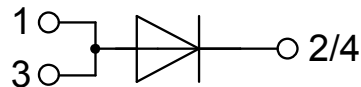
Features / Advantages:
- Planar passivated chips
- Very low leakage current
- Very low forward voltage drop
- Improved thermal behaviour

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

Data according to IEC 60747and per semiconductor unless otherwise specified

20130107a

Rectifier

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	V_R = 800 V	T_{VJ} = 25°C			40	μA
		V_R = 800 V	T_{VJ} = 150°C			1.5	mA
V_F	forward voltage drop	I_F = 30 A	T_{VJ} = 25°C			1.29	V
		I_F = 60 A				1.60	V
		I_F = 30 A	T_{VJ} = 150°C			1.25	V
		I_F = 60 A				1.66	V
I_{FAV}	average forward current	T_C = 130°C rectangular d = 0.5	T_{VJ} = 175°C			30	A
V_{F0}	threshold voltage	} for power loss calculation only	T_{VJ} = 175°C			0.82	V
r_F	slope resistance					14.1	mΩ
R_{thJC}	thermal resistance junction to case					0.9	K/W
R_{thCH}	thermal resistance case to heatsink				0.25		K/W
P_{tot}	total power dissipation		T_C = 25°C			160	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

Ratings

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		-40		175	°C
Weight				2		g
F_C	mounting force with clip		20		60	N

Product Marking

Part No. → XXXXXXXXX

Logo → IXYS yyww z

Date Code
Assembly Line → 000000
Assembly Code
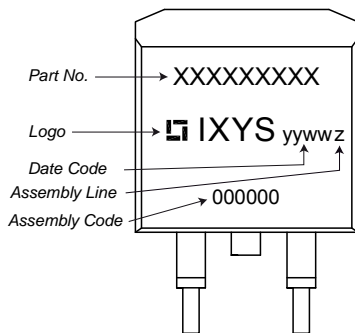
Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSI30-08AS	DSI30-08AS	Tape & Reel	800	489212

Similar Part	Package	Voltage class
DSI30-08A	TO-220AC (2)	800
DSI30-08AC	ISOPLUS220AC (2)	800
DSI30-12AS	TO-263AB (D2Pak) (2)	1200
DSI30-12A	TO-220AC (2)	1200
DSI30-12AC	ISOPLUS220AC (2)	1200
DSI30-16AS	TO-263AB (D2Pak) (2)	1600
DSI30-16A	TO-220AC (2)	1600

## Equivalent Circuits for Simulation   *on die level* T_{VJ} = 175 °C

I → V_0 → R_o **Rectifier**
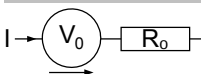
$V_{0\,max}$	threshold voltage	0.82	V
$R_{0\,max}$	slope resistance *	11	mΩ

Outlines   TO-263 (D2Pak)
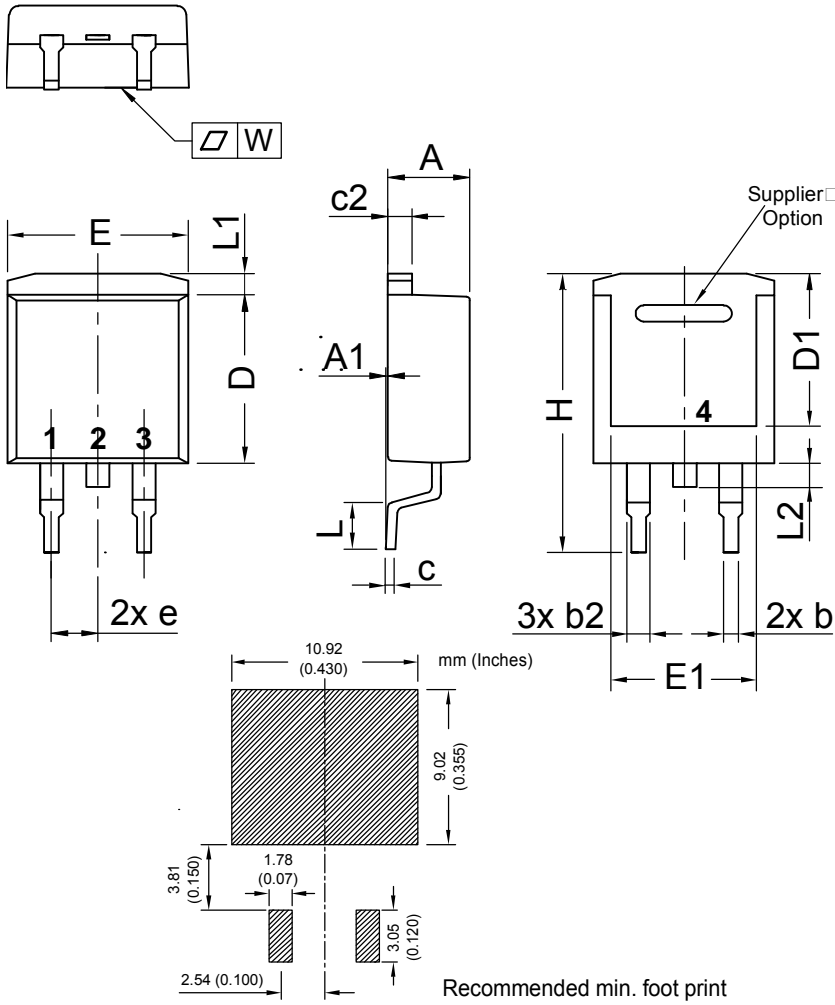
Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	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.

mm (Inches)
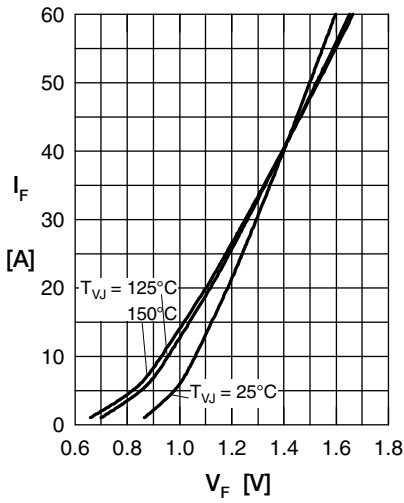
Recommended min. foot print
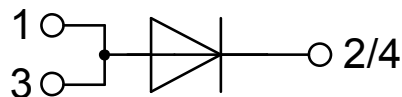
Rectifier

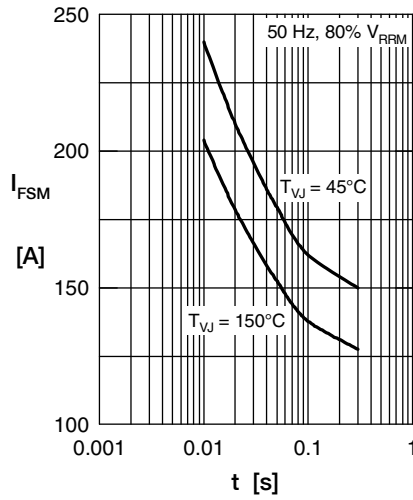Fig. 1 Forward current versus voltage drop per diode
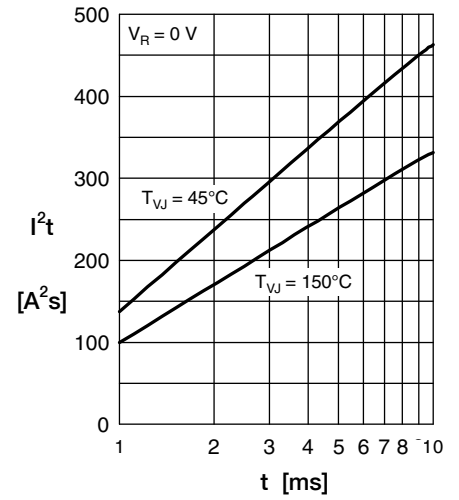

Fig. 2 Surge overload current

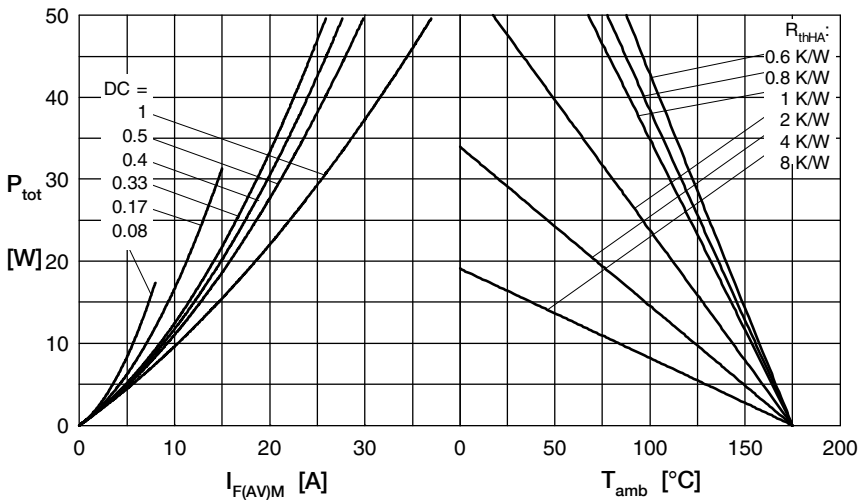Fig. 3 I^2t versus time per diode

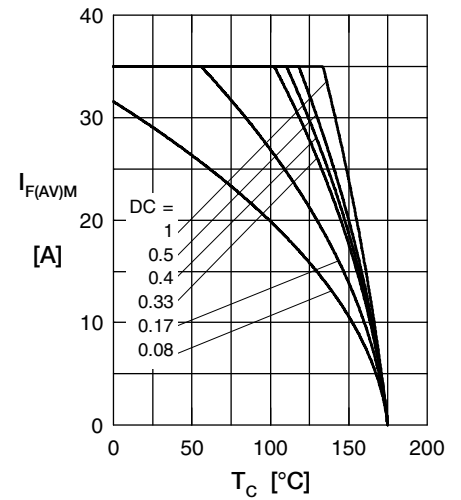Fig. 4 Power dissipation vs. direct output current and ambient temperature

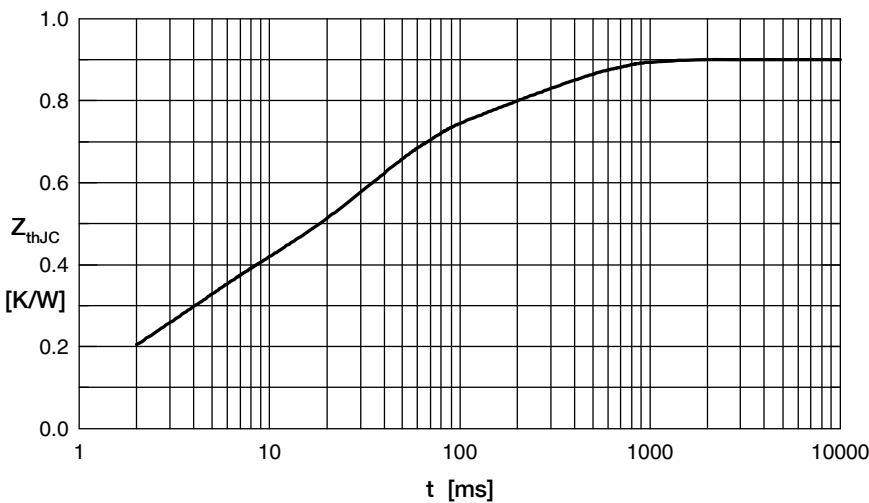Fig. 5 Max. forward current vs. case temperature

Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.03	0.0004
2	0.08	0.002
3	0.2	0.003
4	0.39	0.03
5	0.2	0.29