

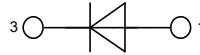
High Voltage Standard Rectifier

Single Diode

$$\begin{aligned} V_{RRM} &= 2200 \text{ V} \\ I_{FAV} &= 30 \text{ A} \\ V_F &= 1.26 \text{ V} \end{aligned}$$

Part number

DNA 30 E 2200 PC



Backside: anode

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

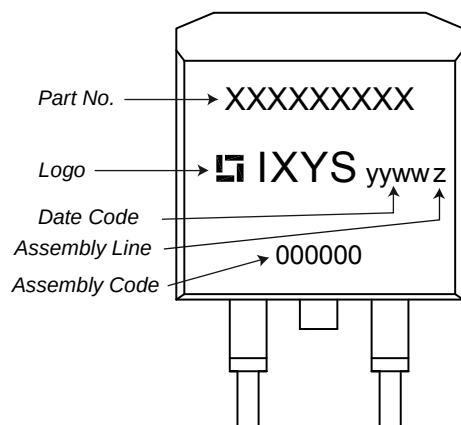
Package:

- Housing: TO-263 (D2Pak)
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

Symbol	Definition	Conditions	Ratings			
			min.	typ.	max.	Unit
V_{RRM}	max. repetitive reverse voltage	$T_{VJ} = 25^{\circ}\text{C}$			2200	V
I_R	reverse current	$V_R = 2200 \text{ V}$ $T_{VJ} = 25^{\circ}\text{C}$			40	μA
		$V_R = 2200 \text{ V}$ $T_{VJ} = 150^{\circ}\text{C}$			1.5	mA
V_F	forward voltage	$I_F = 30 \text{ A}$ $T_{VJ} = 25^{\circ}\text{C}$			1.28	V
		$I_F = 60 \text{ A}$ $T_{VJ} = 25^{\circ}\text{C}$			1.59	V
		$I_F = 30 \text{ A}$ $T_{VJ} = 150^{\circ}\text{C}$			1.26	V
		$I_F = 60 \text{ A}$ $T_{VJ} = 150^{\circ}\text{C}$			1.61	V
I_{FAV}	average forward current	rectangular $d = 0.5$ $T_C = 140^{\circ}\text{C}$			30	A
V_{F0}	threshold voltage	$T_{VJ} = 175^{\circ}\text{C}$			0.88	V
r_F	slope resistance				12.9	m Ω
R_{thJC}	thermal resistance junction to case				0.70	K/W
T_{VJ}	virtual junction temperature		-55		175	$^{\circ}\text{C}$
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$			210	W
I_{FSM}	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$ $T_{VJ} = 45^{\circ}\text{C}$			370	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$ $V_R = 0 \text{ V}$			400	A
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$ $T_{VJ} = 150^{\circ}\text{C}$			315	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$ $V_R = 0 \text{ V}$			340	A
I^2t	value for fusing	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$ $T_{VJ} = 45^{\circ}\text{C}$			685	A ² s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$ $V_R = 0 \text{ V}$			665	A ² s
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$ $T_{VJ} = 150^{\circ}\text{C}$			495	A ² s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$ $V_R = 0 \text{ V}$			480	A ² s
C_J	junction capacitance	$V_R = 700 \text{ V}; f = 1 \text{ MHz}$ $T_{VJ} = 25^{\circ}\text{C}$		7		pF

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
I_{RMS}	RMS current	per terminal			35	A
R_{thCH}	thermal resistance case to heatsink			0.25		K/W
T_{stg}	storage temperature		-55		150	°C
Weight				2		g
F_c	mounting force with clip		20		60	N

Product Marking



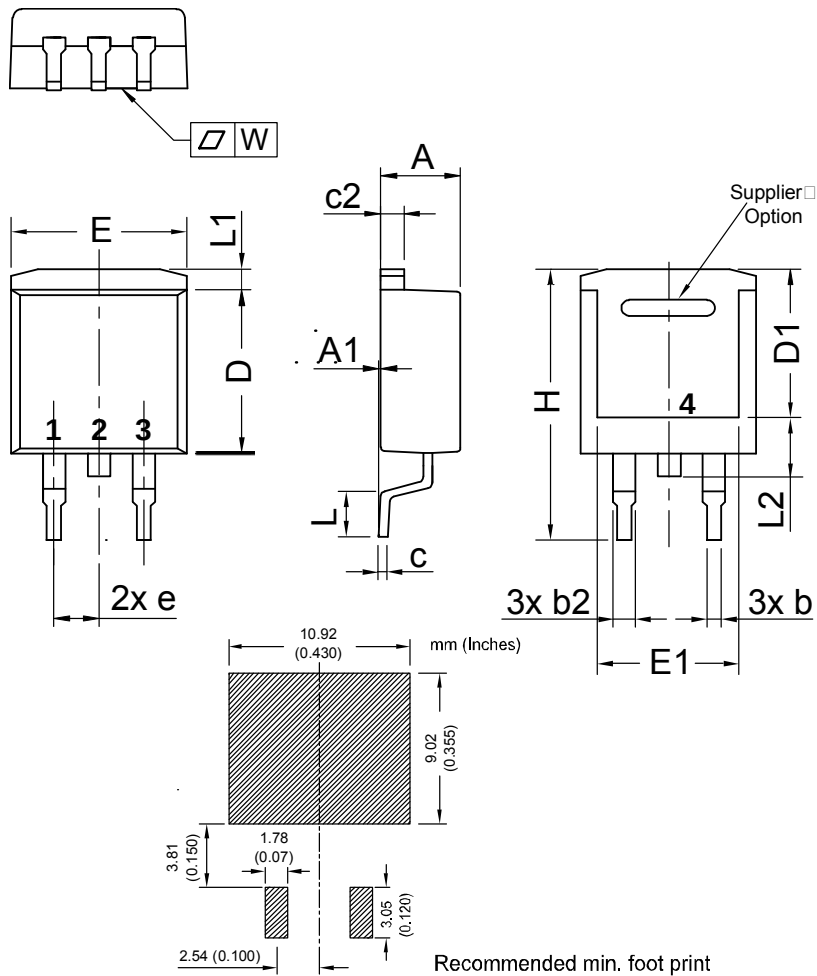
Part number

D = Diode
 N = High Voltage Standard Rectifier
 A = (≥ 2200 V)
 30 = Current Rating [A]
 E = Single Diode
 2200 = Reverse Voltage [V]
 PC = TO-263AB (D2Pak) (2)

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DNA 30 E 2200 PC	DNA30E2200PC	Tape & Reel	800	510322
Sampling	DNA30E2200PC-TUB	DNA30E2200PC	Tube	50	509374

Similar Part	Package	Voltage class
DNA30EM2200PC	TO-263AB (D2Pak)	2200
DNA30E2200PA	TO-220AC (2)	2200
DNA30E2200FE	i4-Pac (2HV)	2200

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	
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	0.029
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.20	0.245	0.323
e	2,54 BSC		0,100 BSC	
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
L2	1.02	1.52	0.040	0.060
W	typ. 0.02	0.040	typ. 0.0008	0.0016

All dimensions conform with and/or are within JEDEC standard.

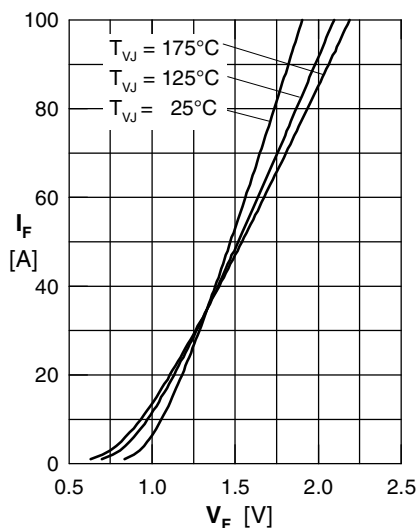


Fig. 1 Forward current versus voltage drop per diode

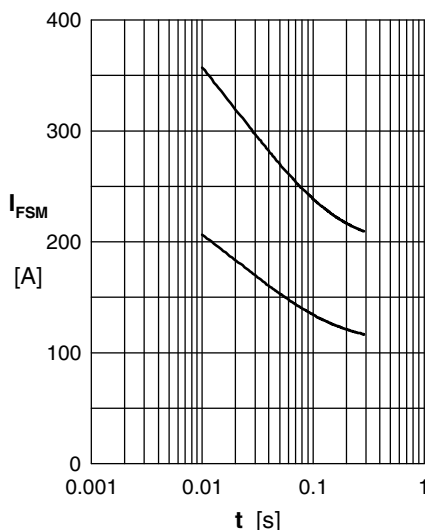


Fig. 2 Surge overload current

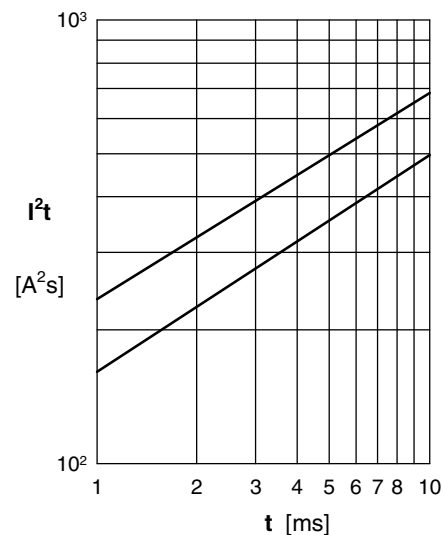


Fig. 3 I^2t versus time per diode

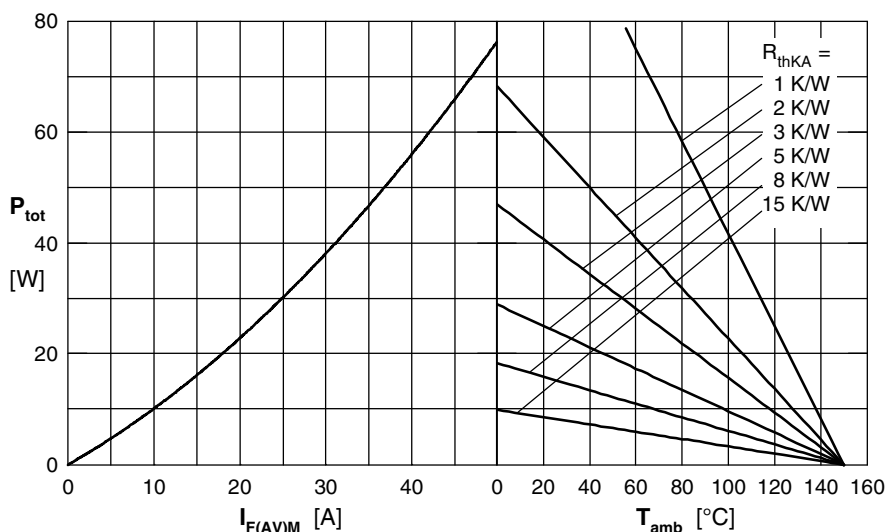


Fig. 4 Power dissipation vs. direct output current & ambient temperature, sine 180°

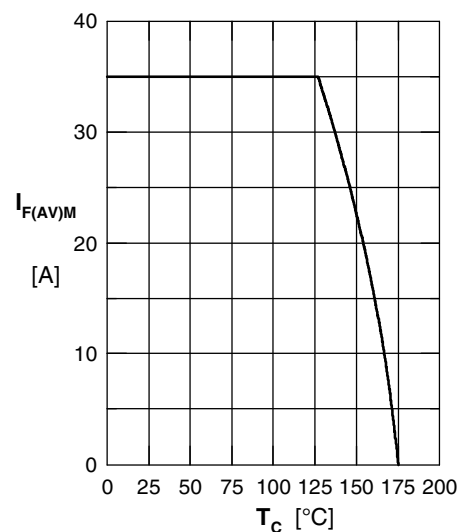


Fig. 5 Max. forward current versus case temperature, sine 180°

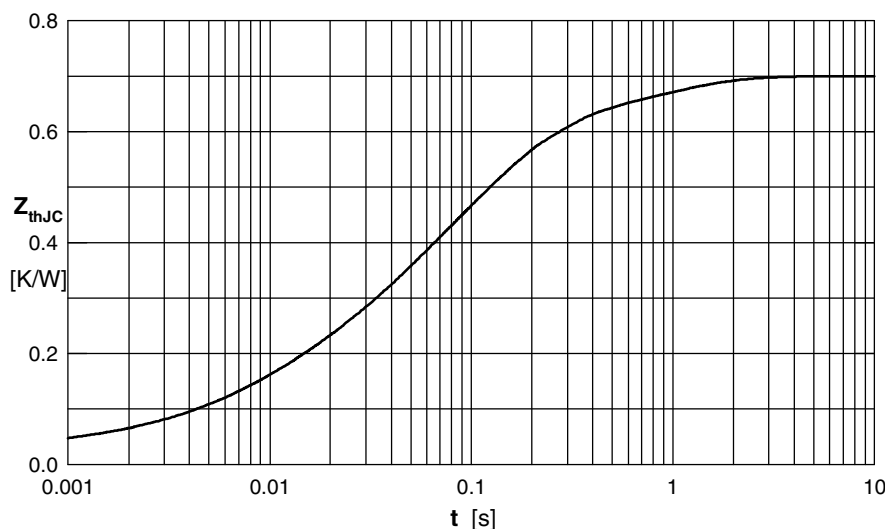


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.03	0.0003
2	0.072	0.0065
3	0.131	0.027
4	0.367	0.105
5	0.1	0.8