

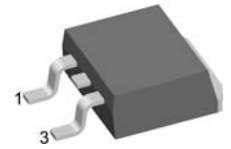
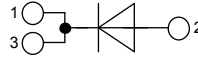
# High Voltage Standard Rectifier

Single Diode

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

Part number

**DNA 30 EM 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

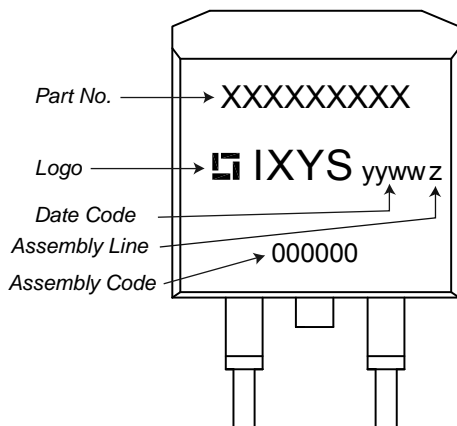
### Package:

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

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
$V_{RRM}$	max. repetitive reverse voltage				2200	V
$I_R$	reverse current	$V_R = 2200 \text{ V}$			40	$\mu\text{A}$
		$V_R = 2200 \text{ V}$			1.5	mA
$V_F$	forward voltage	$I_F = 30 \text{ A}$			1.28	V
		$I_F = 60 \text{ A}$			1.59	V
		$I_F = 30 \text{ A}$			1.26	V
		$I_F = 60 \text{ A}$			1.61	V
$I_{FAV}$	average forward current	rectangular $d = 0.5$			30	A
$V_{FO}$	threshold voltage	} for power loss calculation only			0.88	V
$r_F$	slope resistance				12.9	m $\Omega$
$R_{thJC}$	thermal resistance junction to case				0.70	K/W
$T_{VJ}$	virtual junction temperature		-55		175	$^{\circ}\text{C}$
$P_{tot}$	total power dissipation				210	W
$I_{FSM}$	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$			370	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$			400	A
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$			315	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$			340	A
$I^2t$	value for fusing	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$			685	A <sup>2</sup> s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$			665	A <sup>2</sup> s
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$			495	A <sup>2</sup> s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$			480	A <sup>2</sup> s
$C_J$	junction capacitance	$V_R = 700 \text{ V}; f = 1 \text{ MHz}$		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
<b>Weight</b>				2		g
$F_c$	mounting force with clip		20		60	N

### Product Marking

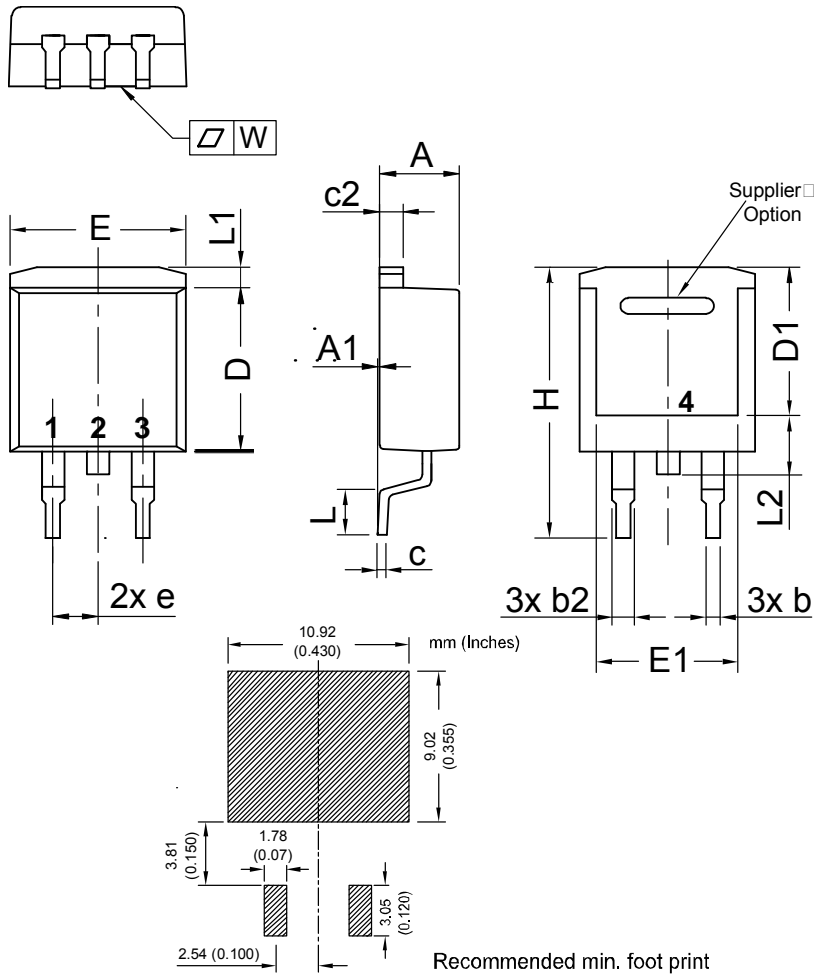


### Part number

- D = Diode
- N = High Voltage Standard Rectifier
- A = ( $\geq 2200$  V)
- 30 = Current Rating [A]
- EM = 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 EM 2200 PC	DNA30EM2200PC	Tape & Reel	800	511308

Similar Part	Package	Voltage class
DNA30E2200PC	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.

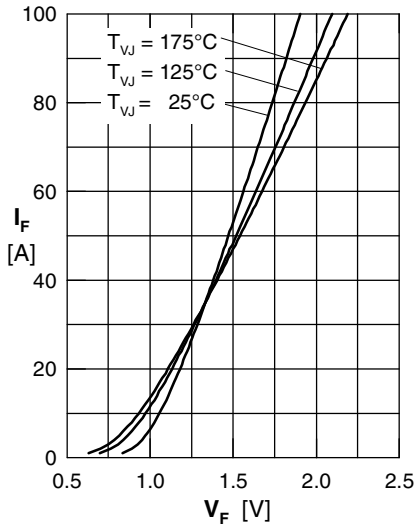


Fig. 1 Forward current versus voltage drop per diode

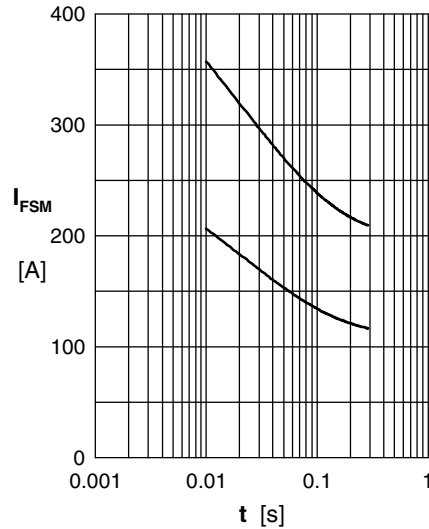


Fig. 2 Surge overload current

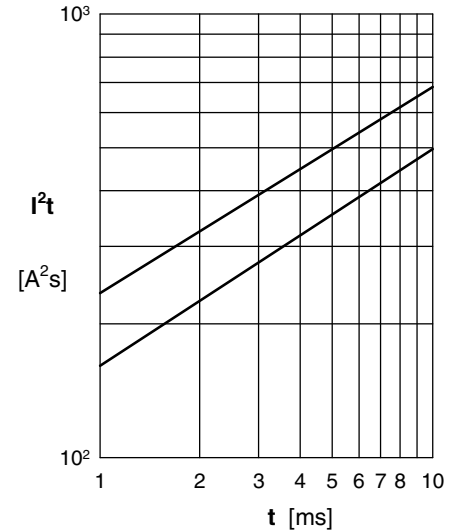


Fig. 3  $I^2t$  versus time per diode

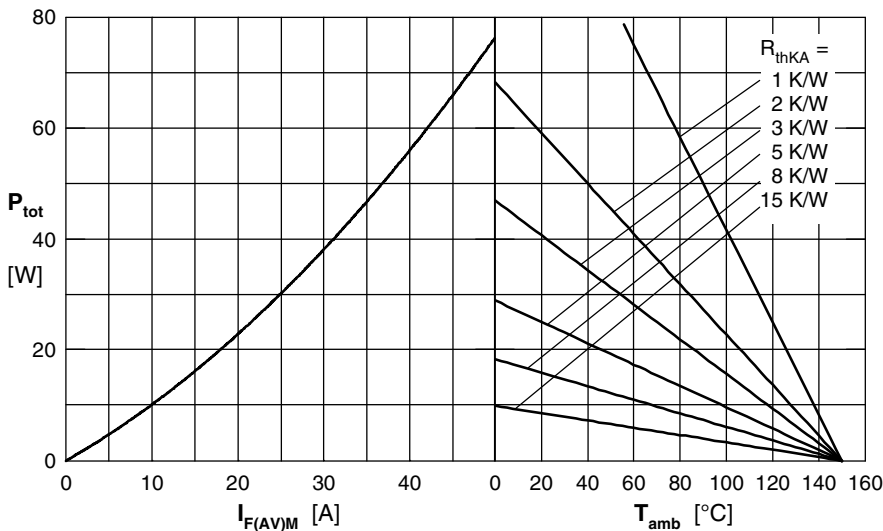


Fig. 4 Power dissipation vs. direct output current & ambient temperature, sine 180°

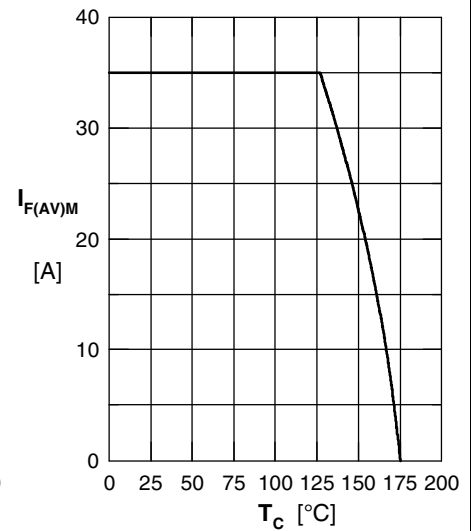


Fig. 5 Max. forward current versus case temperature, sine 180°

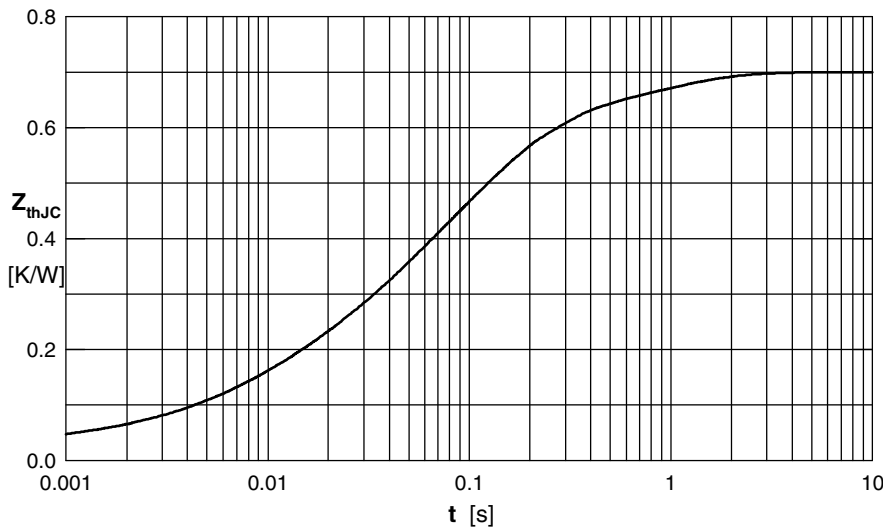


Fig. 6 Transient thermal impedance junction to case

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