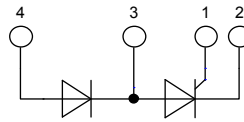


High Efficiency Thyristor

Phase leg

 $V_{RRM} = 1200\text{ V}$
 $I_{T(AV)M} = 100\text{ A}$
 $I_{T(RMS)} = 157\text{ A}$

Part number

CLA 100 PD 1200 NA


Backside: isolated

Features / Advantages:

- Thyristor for line frequency
- Planar passivated chip
- Long-term stability

Applications:

- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control

Package:


E72873

- Housing: SOT-227B (minibloc)
- Industry standard outline
- Cu base plate internal DCB isolated
- Isolation Voltage 3000 V
- Epoxy meets UL 94V-0
- RoHS compliant

Ratings

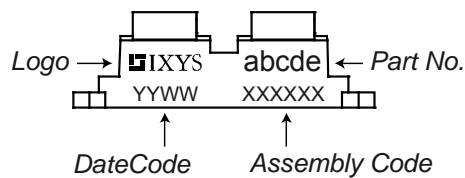
Symbol	Definition	Conditions	Ratings			Unit	
			min.	typ.	max.		
$V_{RSM/DSM}$	max. non-repetitive reverse/forward blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$			1300	V	
$V_{RRM/DRM}$	max. repetitive reverse/forward blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$			1200	V	
I_{RD}	reverse current, drain current	$V_{RD} = 1200\text{ V}$			50	μA	
		$V_{RD} = 1200\text{ V}$			10	mA	
V_T	forward voltage drop	$I_T = 100\text{ A}$			1.27	V	
		$I_T = 200\text{ A}$			1.55	V	
		$I_T = 100\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			1.21	V
		$I_T = 200\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			1.58	V
$I_{T(AV)M}$	average forward current	$T_C = 85^{\circ}\text{C}$			100	A	
$I_{T(RMS)}$	RMS forward current	180° sine			157	A	
V_{T0}	threshold voltage	} for power loss calculation only	$T_{VJ} = 150^{\circ}\text{C}$		0.83	V	
r_T	slope resistance				3.7	m Ω	
R_{thJC}	thermal resistance junction to case				0.35	K/W	
T_{VJ}	virtual junction temperature		-40		150	$^{\circ}\text{C}$	
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$			350	W	
P_{GM}	max. gate power dissipation	$t_p = 30\ \mu\text{s}$			10	W	
		$t_p = 300\ \mu\text{s}$			5	W	
P_{GAV}	average gate power dissipation				0.5	W	
I_{TSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$		1.50	kA	
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$		1.62	kA	
		$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$		1.28	kA	
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$		1.38	kA	
I_{t^2}	value for fusing	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$		11.3	kA ² s	
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$		10.9	kA ² s	
		$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$		8.13	kA ² s	
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$		7.87	kA ² s	
C_J	junction capacitance	$V_R = 400\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		25	pF	

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
$(di/dt)_{cr}$	critical rate of rise of current	$T_{VJ} = 150^{\circ}\text{C}$ repetitive, $I_T = 150\text{ A}$ $f = 50\text{ Hz}$; $t_p = 200\ \mu\text{s}$ $I_G = 0.5\text{ A}$; $di_G/dt = 0.5\text{ A}/\mu\text{s}$			150	$\text{A}/\mu\text{s}$
		$V_D = \frac{2}{3} V_{DRM}$ non-repetitive, $I_T = 100\text{ A}$			500	$\text{A}/\mu\text{s}$
$(dv/dt)_{cr}$	critical rate of rise of voltage	$V_D = \frac{2}{3} V_{DRM}$ $T_{VJ} = 150^{\circ}\text{C}$ $R_{GK} = \infty$; method 1 (linear voltage rise)			1000	$\text{V}/\mu\text{s}$
V_{GT}	gate trigger voltage	$V_D = 6\text{ V}$ $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = -40^{\circ}\text{C}$			1.5	V
I_{GT}	gate trigger current	$V_D = 6\text{ V}$ $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = -40^{\circ}\text{C}$			1.6	V
					50	mA
V_{GD}	gate non-trigger voltage	$V_D = \frac{2}{3} V_{DRM}$ $T_{VJ} = 150^{\circ}\text{C}$			0.2	V
I_{GD}	gate non-trigger current				5	mA
I_L	latching current	$t_p = 10\ \mu\text{s}$ $T_{VJ} = 25^{\circ}\text{C}$ $I_G = 0.5\text{ A}$; $di_G/dt = 0.5\text{ A}/\mu\text{s}$			150	mA
I_H	holding current	$V_D = 6\text{ V}$ $R_{GK} = \infty$ $T_{VJ} = 25^{\circ}\text{C}$			100	mA
t_{gd}	gate controlled delay time	$V_D = \frac{1}{2} V_{DRM}$ $T_{VJ} = 25^{\circ}\text{C}$ $I_G = 0.5\text{ A}$; $di_G/dt = 0.5\text{ A}/\mu\text{s}$			2	μs
t_q	turn-off time	$V_R = 100\text{ V}$; $I_T = 100\text{ A}$ $T_{VJ} = 150^{\circ}\text{C}$		150		μs
		$V_D = \frac{2}{3} V_{DRM}$; $t_p = 200\ \mu\text{s}$ $di/dt = 10\text{ A}/\mu\text{s}$; $dv/dt = 20\text{ V}/\mu\text{s}$				

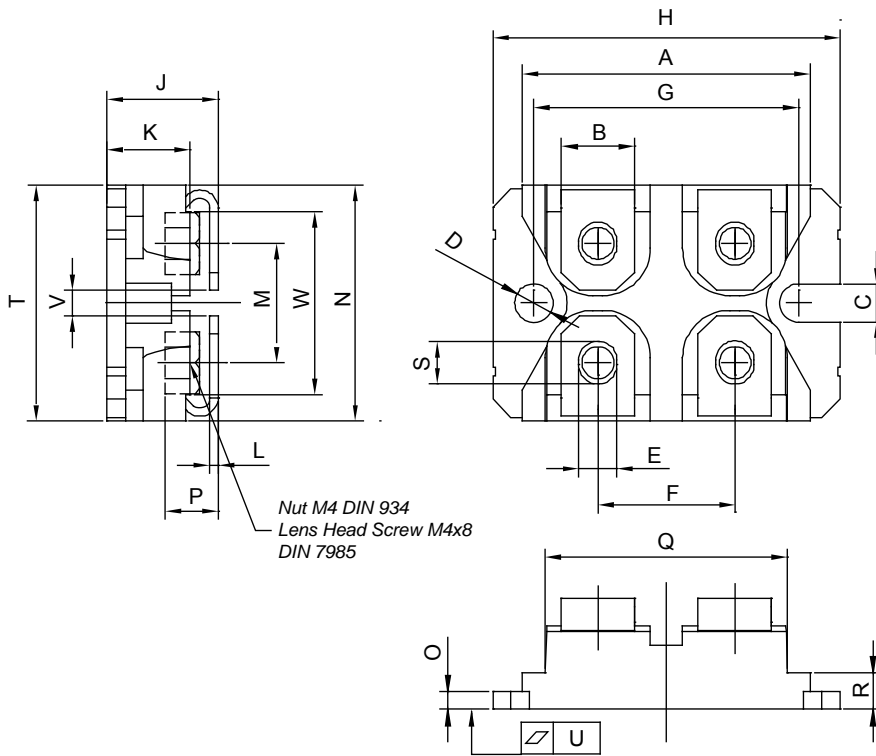
Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
I_{RMS}	RMS current	per terminal			150	A
R_{thCH}	thermal resistance case to heatsink			0.10		K/W
T_{stg}	storage temperature		-40		150	°C
Weight				30		g
M_D	mounting torque		1.1		1.5	Nm
M_T	terminal torque		1.1		1.5	Nm
V_{ISOL}	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			V
d_s	creepage distance on surface		8			mm
d_A	striking distance through air		4			mm

Part number

- C = Thyristor (SCR)
- L = High Efficiency Thyristor
- A = (up to 1200 V)
- 100 = Current Rating [A]
- PD = Phase leg, high-side Thyristor / low-side Diode
- 1200 = Reverse Voltage [V]
- NA = SOT-227B (minibloc)

Product Marking


Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	CLA 100 PD 1200 NA	CLA100PD1200NA	Tube	10	509048

Outlines SOT-227B (minibloc)


SYM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	31.50	31.88	1.240	1.255
B	7.80	8.20	.307	.323
C	4.09	4.29	.161	.169
D	4.09	4.29	.161	.169
E	4.09	4.29	.161	.169
F	14.91	15.11	.587	.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.489	1.505
J	11.68	12.22	.460	.481
K	8.92	9.60	.351	.378
L	0.76	0.84	.030	.033
M	12.60	12.85	.496	.506
N	25.15	25.42	.990	1.001
O	1.98	2.13	.078	.084
P	4.95	5.97	.195	.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	.155	.174
S	4.72	4.85	.186	.191
T	24.59	25.07	.968	.987
U	-.05	.10	-.002	.004
V	3.30	4.57	.130	.180
W	19.81	21.08	.780	.830