

tentative

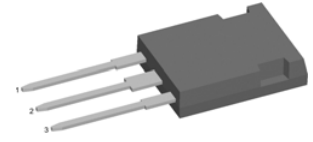
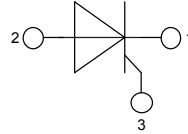
Medium SCR

Single Thyristor

$$\begin{aligned} V_{RRM} &= 1200 \text{ V} \\ I_{T(RMS)} &= 126 \text{ A} \\ I_{T(AVM)} &= 80 \text{ A} \end{aligned}$$

Part number

CLA 80 E 1200 HF



Backside: anode

Features / Advantages:

- Thyristor for line frequency
- Planar passivated chip
- Long-term stability of blocking currents and voltages

Applications:

- Motor control
- Power converter
- AC power controller
- Switch mode and resonant mode power supplies
- Light and temperature control

Package:

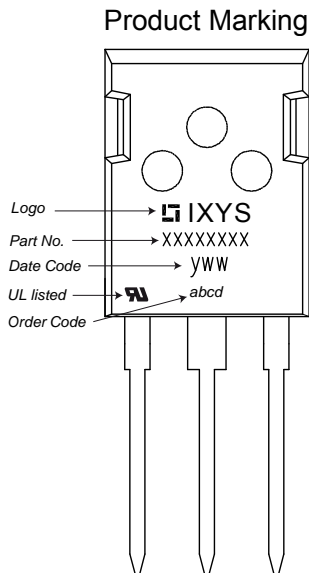
- Housing: PLUS247
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
V_{RSMDSM}	max. non-repetitive reverse/forward blocking voltage				1300	V
$V_{RRM/DRM}$	max. repetitive reverse/forward blocking voltage				1200	V
$I_{R/D}$	reverse current, drain current	$V_R = 1200 \text{ V}$			50	μA
		$V_R = 1200 \text{ V}$			5	mA
V_T	forward voltage	$I_F = 80 \text{ A}$			1.40	V
		$I_F = 160 \text{ A}$			1.77	V
		$I_F = 80 \text{ A}$			1.38	V
		$I_F = 160 \text{ A}$			1.67	V
$I_{T(AVM)}$	max. average forward current	$T_C = 115^\circ\text{C}$			80	A
$I_{T(RMS)}$	RMS forward current	180° sine			126	A
V_{T0}	threshold voltage	} for power loss calculation only			0.90	V
r_T	slope resistance				6	m Ω
R_{thJC}	thermal resistance junction to case				0.20	K/W
T_{VJ}	virtual junction temperature		-40		150	$^\circ\text{C}$
P_{tot}	total power dissipation				625	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_{FSM}	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 45^\circ\text{C}$		900	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$		970	A
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 150^\circ\text{C}$		765	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$		825	A
I^2t	value for fusing	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 45^\circ\text{C}$		4.05	kA ^2s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$		3.92	kA ^2s
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 150^\circ\text{C}$		2.93	kA ^2s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$		2.83	kA ^2s
C_J	junction capacitance	$V_R = 400 \text{ V}$ $f = 1 \text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		36	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, $I_T = 40\text{ A}$ $f = 50\text{ Hz}$; $t_p = 200\text{ }\mu\text{s}$			150	$\text{A}/\mu\text{s}$
		$I_G = 0.3\text{ A}$; $di_G/dt = 0.3\text{ A}/\mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ non-repetitive, $I_T = 50\text{ A}$			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
					38	mA
					80	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	$t_p = 10\text{ }\mu\text{s}$ $T_{VJ} = 25^{\circ}\text{C}$ $I_G = 0.3\text{ A}$; $di_G/dt = 0.3\text{ A}/\mu\text{s}$			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	$V_R = \frac{1}{2} V_{DRM}$ $T_{VJ} = 25^{\circ}\text{C}$ $I_G = 0.3\text{ A}$; $di_G/dt = 0.3\text{ A}/\mu\text{s}$			2	μs
t_q	turn-off time	$V_R = 100\text{ V}$; $I_T = 48\text{ A}$ $T_{VJ} = 25^{\circ}\text{C}$ $V_D = \frac{2}{3} V_{DRM}$; $t_p = 200\text{ }\mu\text{s}$ $di/dt = 20\text{ A}/\mu\text{s}$; $dv/dt = 20\text{ V}/\mu\text{s}$		150		μs

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
I_{RMS}	RMS current	per pin ¹⁾			70	A
R_{thCH}	thermal resistance case to heatsink			0.25		K/W
T_{stg}	storage temperature		-55		150	°C
Weight				6		g
F_C	mounting force with clip		20		120	N

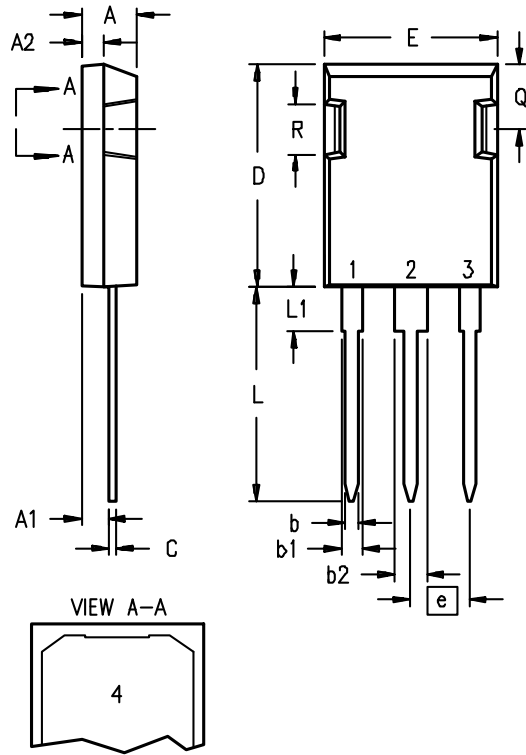
¹⁾ I_{RMS} is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.
 In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.


Part number

C = Thyristor (SCR)
 L = Medium SCR
 A = (up to 1200V)
 80 = Current Rating [A]
 E = Single Thyristor
 1200 = Reverse Voltage [V]
 HF = PLUS247 (3)

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	CLA 80 E 1200 HF	CLA80E1200HF	Tube	30	508680

Outlines PLUS247



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	0.19	0.205
A1	2.29	2.54	0.09	0.1
A2	1.91	2.16	0.075	0.085
b	1.14	1.4	0.045	0.055
b1	1.91	2.13	0.075	0.084
b2	2.92	3.12	0.115	0.123
C	0.61	0.8	0.024	0.031
D	20.8	21.34	0.819	0.84
E	15.75	16.13	0.62	0.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	0.78	0.8
L1	3.81	4.32	0.15	0.17
Q	5.59	6.2	0.22	0.244
R	4.32	4.83	0.17	0.19