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With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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High Efficiency Thyristor

1200 V V_{RRM}

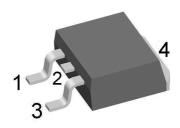
30 A

1.27 V

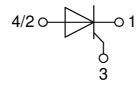
Single Thyristor

Part number

CLA30E1200PC



Backside: anode



Features / Advantages:

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

Applications:

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter AC power control
- Lighting and temperature control

Package: TO-263 (D2Pak)

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

Terms _Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact the sales office, which is responsible for you.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the product in aviation, in health or live endangering or life support applications, please notify. For any such application we urgently recommend

- to perform joint risk and quality assessments;
 the conclusion of quality agreements;
- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

IXYS reserves the right to change limits, conditions and dimensions.

Data according to IEC 60747 and per semiconductor unless otherwise specified

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Thyristo				'	Ratings		!
Symbol	Definition	Conditions		min.	typ.	max.	Un
V _{RSM/DSM}	max. non-repetitive reverse/forwa	rd blocking voltage	$T_{VJ} = 25^{\circ}C$			1300	
V _{RRM/DRM}	max. repetitive reverse/forward bl	0 0	$T_{VJ} = 25^{\circ}C$			1200	
R/D	reverse current, drain current	$V_{R/D} = 1200 \text{ V}$	$T_{VJ} = 25^{\circ}C$			10	μ
		$V_{R/D} = 1200 \text{ V}$	$T_{VJ} = 125^{\circ}C$			2	m
V _T	forward voltage drop	$I_T = 30 \text{ A}$	$T_{VJ} = 25^{\circ}C$			1.30	,
		$I_{T} = 60 \text{ A}$				1.59	,
		$I_{T} = 30 \text{ A}$	T _{vJ} = 125°C			1.27	
		$I_T = 60 \text{ A}$				1.65	
I _{TAV}	average forward current	T _C = 115°C	T _{vJ} = 150°C			30	
T(RMS)	RMS forward current	180° sine				47	
V _{T0}	threshold voltage		T _{v.i} = 150°C			0.86	
r _⊤	slope resistance for power log	oss calculation only	***			13.2	m!
R _{thJC}	thermal resistance junction to cas	e				0.5	K/V
R _{thCH}	thermal resistance case to heatsin				0.25		K/V
P _{tot}	total power dissipation		T _C = 25°C		0.20	250	V
T _{SM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VI} = 45^{\circ}C$			300	
*TSM	man remara carge carrent	t = 8.3 ms; (60 Hz), sine	$V_R = 0 V$			325	
		t = 0.5 ms; (50 Hz), sine	$T_{VJ} = 150^{\circ}C$			255	
		, , , , , , , , , , , , , , , , , , , ,	$V_{R} = 0 \text{ V}$			275	į
194	value for fucing	t = 8,3 ms; (60 Hz), sine					Λ2
l²t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}C$			450	A ²
		t = 8,3 ms; (60 Hz), sine	$V_R = 0 V$			440	A ²
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150$ °C			325	A ²
		t = 8,3 ms; (60 Hz), sine	$V_R = 0 V$		4.0	315	
C,	junction capacitance	$V_R = 400 V f = 1 MHz$	$T_{VJ} = 25^{\circ}C$		13		р
P_{GM}	max. gate power dissipation	$t_P = 30 \mu s$	$T_{C} = 150^{\circ}C$			10	į
		t _P = 300 μs				5	٧
P _{GAV}	average gate power dissipation					0.5	۷
(di/dt) _{cr}	critical rate of rise of current	$T_{VJ} = 150 {}^{\circ}\text{C}; f = 50 \text{Hz}$ re	petitive, $I_T = 90 A$			150	A/µ
		$t_P = 200 \mu s; di_G/dt = 0.3 A/\mu s;$					i
		$I_G = 0.3 \text{ A}; V = \frac{2}{3} V_{DRM}$ no	on-repet., $I_T = 30 \text{ A}$			500	A/μ
(dv/dt) _{cr}	critical rate of rise of voltage	$V = \frac{2}{3} V_{DRM}$	$T_{VJ} = 150$ °C			500	V/µ
		R _{GK} = ∞; method 1 (linear voltag	ge rise)				
V _{GT}	gate trigger voltage	$V_D = 6 V$	$T_{VJ} = 25^{\circ}C$			1.3	١
			$T_{VJ} = -40$ °C			1.6	١
I _{GT}	gate trigger current	$V_D = 6 V$	$T_{VJ} = 25^{\circ}C$			30	m
			$T_{VJ} = -40$ °C			50	m
V _{GD}	gate non-trigger voltage	$V_D = \frac{2}{3} V_{DBM}$	T _{VJ} = 150°C			0.2	,
I _{GD}	gate non-trigger current	D DI IIII				1	m
-g _D	latching current	t _n = 10 μs	T _{vJ} = 25°C			90	m
"L		$I_{G} = 0.3 \text{ A}; \text{ di}_{G}/\text{dt} = 0.3 \text{ A}/\mu\text{s}$				00	
	holding current	$V_D = 6 \text{ V } R_{GK} = \infty$	T _{vJ} = 25°C			60	m
I _H	gate controlled delay time		$T_{VJ} = 25 \text{ C}$ $T_{VJ} = 25 \text{ °C}$				<u> </u>
t _{gd}	gate controlled delay little	$V_D = \frac{1}{2} V_{DRM}$				2	μ
	A aff time a	$I_{\rm G} = 0.3 \text{A}; \text{di}_{\rm G}/\text{dt} = 0.3 \text{A}/\mu \text{s}$			4=0		-
t _q	turn-off time	$V_R = 100 \text{ V}; I_T = 30 \text{ A}; V = \frac{2}{3}$			150		μ
		$di/dt = 10 A/\mu s dv/dt = 20 V/$	/μs t _p = 200 μs	1			1 1 1



Package TO-263 (D2Pak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
RMS	RMS current	per terminal			35	Α
T _{vJ}	virtual junction temperature		-40)	150	°C
T _{op}	operation temperature		-40)	125	°C
T _{stg}	storage temperature		-40)	150	°C
Weight				2		g
F _c	mounting force with clip		20)	60	N

Product Marking + XXXXXXXXX Part No. -IXYS Zyyww Logo -Assembly Line Date Code **→** 000000 Assembly Code

Part description

C = Thyristor(SCR)

L = High Efficiency Thyristor

A = (up to 1200V)

30 = Current Rating [A]

E = Single Thyristor

1200 = Reverse Voltage [V] PC = TO-263AB (D2Pak) (2)

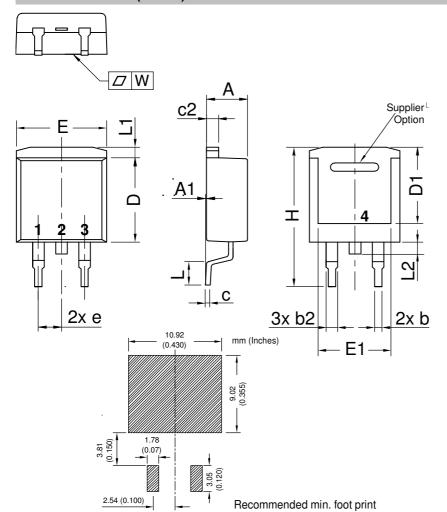
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	CLA30E1200PC	CLA30E1200PC	Tape & Reel	800	508235

Similar Part	Package	Voltage class
CLA30E1200PB	TO-220AB (3)	1200
CLA30E1200HB	TO-247AD (3)	1200
CS22-12io1M	TO-220ABFP (3)	1200
CS22-08io1M	TO-220ABFP (3)	800
CMA30E1600PN	TO-220ABFP (3)	1600
CMA30E1600PB	TO-220AB (3)	1600
CMA30E1600PZ	TO-263AB (D2Pak) (2HV)	1600

Equiva	alent Circuits for	Simulation	* on die level	T _{vJ} = 150 °C
$I \rightarrow V_0$	R_0	Thyristor		
V _{0 max}	threshold voltage	0.86		V
$R_{0 max}$	slope resistance *	10		$m\Omega$

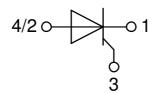


Outlines TO-263 (D2Pak)



	Millimeter		Inches		
Dim.	min	max	min	max	
Α	4.06	4.83	0.160	0.190	
A1	typ.	0.10	typ. 0	0.004	
A2	2.		0.095		
b	0.51	0.99	0.020	0.039	
b2	1.14	1.40	0.045	0.055	
С	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		
Е	9.65	10.41	0.380	0.410	
E1	6.22	8.50	0.245	0.335	
е	2,54 BSC		0,100 BSC		
e1	4.28		0.169		
Н	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.





Thyristor

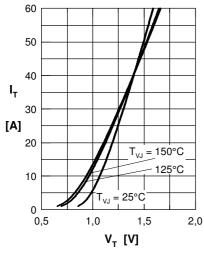


Fig. 1 Forward characteristics

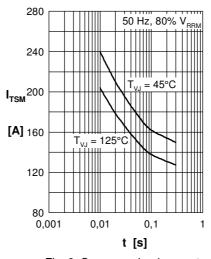


Fig. 2 Surge overload current I_{TSM} : crest value, t: duration

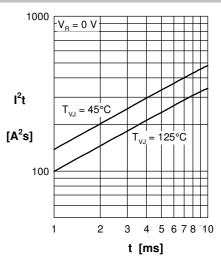


Fig. 3 I²t versus time (1-10 s)

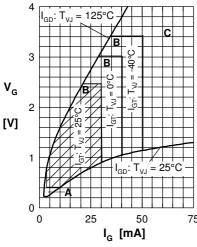


Fig. 4 Gate voltage & gate current Triggering: A = no; B = possible; C = safe

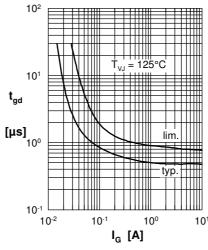


Fig. 5 Gate controlled delay time $t_{\rm gd}$

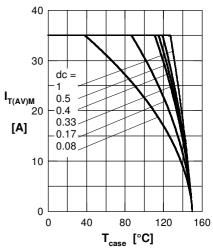


Fig. 6 Max. forward current at case temperature

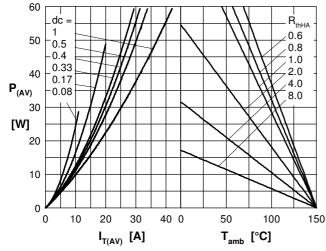


Fig. 7a Power dissipation versus direct output current Fig. 7b and ambient temperature

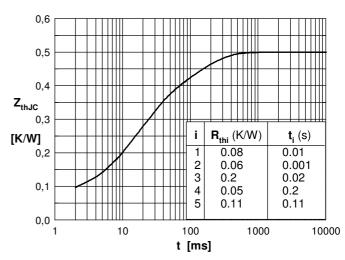


Fig. 7 Transient thermal impedance junction to case