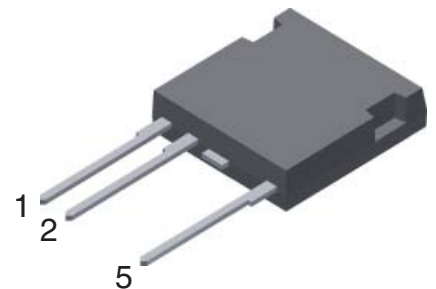
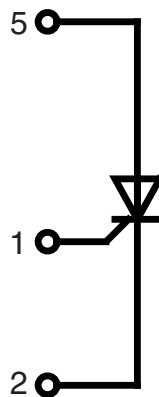


High Voltage Phase Control Thyristor

in High Voltage
ISOPLUS i4-PAC™

$$\begin{aligned} V_{\text{DRM}} = V_{\text{RRM}} &= 2200 \text{ V} \\ I_{\text{T(AV)}} &= 18 \text{ A} \\ I_{\text{TSM}} &= 200 \text{ A} \end{aligned}$$

Part number
CS 20-22moF1



Features / Advantages:

- high voltage thyristor
 - for line frequency
 - chip technology for long term stability
- ISOPLUS i4-PAC™
 - high voltage package
 - isolated back surface
 - enlarged creepage towards heatsink
 - enlarged creepage between high voltage pins
 - application friendly pinout
 - high reliability
 - industry standard outline

Applications:

- controlled rectifiers
 - power supplies
 - drives
- AC switches
- capacitor discharge control
 - flash tubes
 - X-ray and laser generators

Package: i4-Pac

- Isolation Voltage: 3000 V~
- Industry convenient outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Backside: DCB ceramic
- Reduced weight
- Advanced power cycling

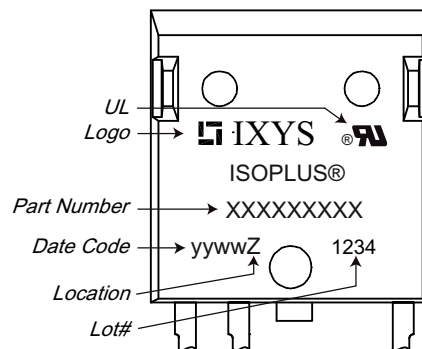
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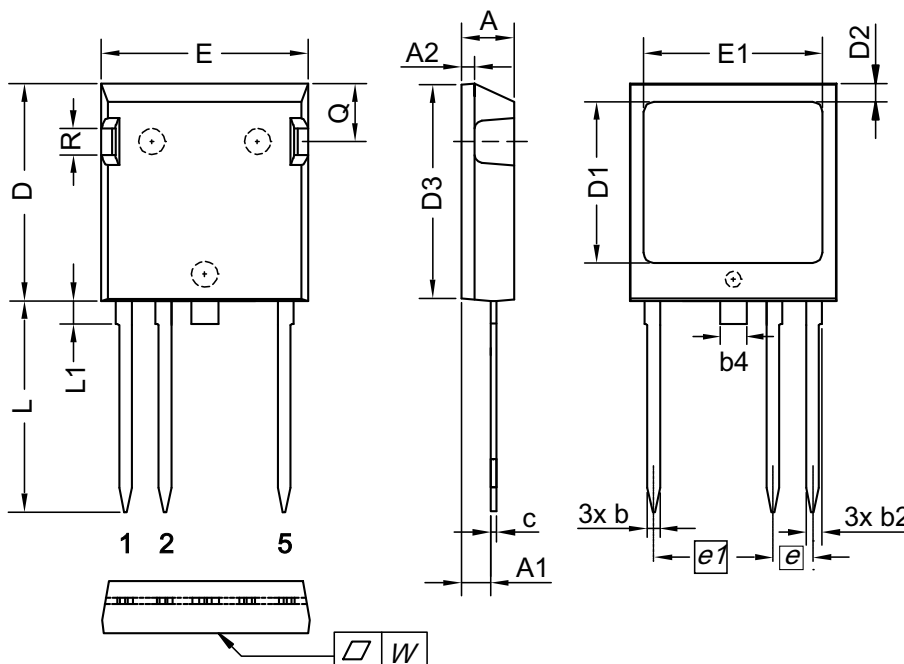
Thyristor			Ratings			
Symbol	Definitions	Conditions	min.	typ.	max.	Unit
$V_{\text{DRM, RRM}}$	max. repetitive blocking voltage				2200	V
$I_{\text{T(AV)}}$	average forward current	sine 180° square; $d = 1/3$	$T_{\text{C}} = 90^{\circ}\text{C}$ $T_{\text{C}} = 90^{\circ}\text{C}$		18 16	A A
I_{TSM}	max. surge on-state current	sine 180°; $t = 10 \text{ ms}$; $V_{\text{R}} = 0 \text{ V}$	$T_{\text{VJ}} = 25^{\circ}\text{C}$		200	A
$(di/dt)_{\text{cr}}$	critical rate of rise of current	$T_{\text{VJ}} = T_{\text{VJM}}$ $f = 50 \text{ Hz}$; $t_{\text{p}} = 200 \mu\text{s}$ repetitive, $I_{\text{T}} = 40 \text{ A}$			100	A/ μs
		$V_{\text{D}} = 2/3 V_{\text{DRM}}$ $I_{\text{G}} = 0.45 \text{ A}$ $di_{\text{G}}/dt = 0.45 \text{ A}/\mu\text{s}$ non repetitive, $I_{\text{T}} = 20 \text{ A}$			250	A/ μs
$(dv/dt)_{\text{cr}}$	critical rate of rise of voltage	$T_{\text{VJ}} = T_{\text{VJM}}$; $V_{\text{D}} = 2/3 V_{\text{DRM}}$ $R_{\text{GK}} = \infty$; method 1 (linear voltage rise)			2500	V/ μs
V_{T}	forward voltage	$I_{\text{T}} = 20 \text{ A}$	$T_{\text{VJ}} = 25^{\circ}\text{C}$ $T_{\text{VJ}} = 125^{\circ}\text{C}$	1.3 1.3	1.5	V V
V_{GT} I_{GT}	gate trigger voltage gate trigger current	$V_{\text{D}} = 6 \text{ V}$	$T_{\text{VJ}} = 25^{\circ}\text{C}$		2.3 250	V mA
V_{GD} I_{GD}	gate non-trigger voltage gate non-trigger current	$V_{\text{D}} = 2/3 V_{\text{DRM}}$	$T_{\text{VJ}} = 125^{\circ}\text{C}$		0.2 5	V mA
I_{L}	latching current	$t_{\text{p}} = 10 \mu\text{s}$; $V_{\text{D}} = 6 \text{ V}$ $I_{\text{G}} = 0.45 \text{ A}$; $di_{\text{G}}/dt = 0.45 \text{ A}/\mu\text{s}$	$T_{\text{VJ}} = 25^{\circ}\text{C}$		500	mA
I_{H}	holding current	$V_{\text{D}} = 6 \text{ V}$; $R_{\text{GK}} = \infty$	$T_{\text{VJ}} = 25^{\circ}\text{C}$		150	mA
t_{gd}	gate controlled delay time	$V_{\text{D}} = 1/2 V_{\text{DRM}}$ $I_{\text{G}} = 0.45 \text{ A}$; $di_{\text{G}}/dt = 0.45 \text{ A}/\mu\text{s}$	$T_{\text{VJ}} = 25^{\circ}\text{C}$	2		μs
I_{R} I_{D}	reverse current drain current	$V_{\text{R}} = V_{\text{RRM}}$; $V_{\text{D}} = V_{\text{DRM}}$	$T_{\text{VJ}} = 25^{\circ}\text{C}$ $T_{\text{VJ}} = 125^{\circ}\text{C}$	2	50	μA mA
R_{thJC}	thermal resistance junction to case	DC current			0.92	K/W
R_{thCH}	thermal resistance case to heatsink	DC current		0.15		K/W

Package I4-Pac			Ratings			
Symbol	Definitions	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			70	A
T_{VJ}	virtual junction temperature		-40		150	°C
T_{op}	operation temperature		-40		125	°C
T_{stg}	storage temperature		-40		150	°C
Weight				5.5		g
F_c	mounting force with clip		20		120	N
$d_{Spp/App}$ $d_{Spb/Appb}$	creepage distance on surface striking distance through air	terminal to terminal terminal to backside	7.2 5.1			mm mm
V_{ISOL}	isolation voltage	$t = 1$ second $t = 1$ minute	3000 2500			V V
			50/60 Hz, RMS, $I_{ISOL} \leq 1$ mA			

Product Marking



Dimensions in mm (1 mm = 0.0394")



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b1	1.47	1.73	0.058	0.068
b4	2.54	2.79	0.100	0.110
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.150 BSC	
e1	11.43 BSC		0.450 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

Die konvexe Form des Substrates ist typ. < 0.05 mm über der Kunststoffoberfläche der Bauteilunterseite
 The convex bow of substrate is typ. < 0.05 mm over plastic surface level of device bottom side