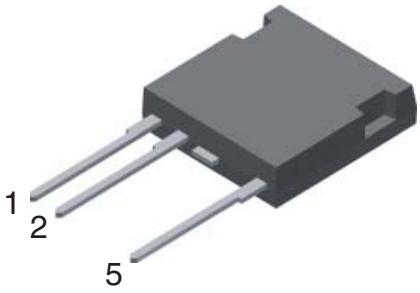
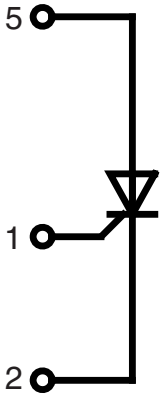
High Voltage Phase Control Thyristor

in High Voltage
ISOPLUS i4-PAC™

$V_{DRM} = V_{RRM}$ = 2200 V
$I_{T(AV)}$ = 18 A
I_{TSM} = 200 A

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

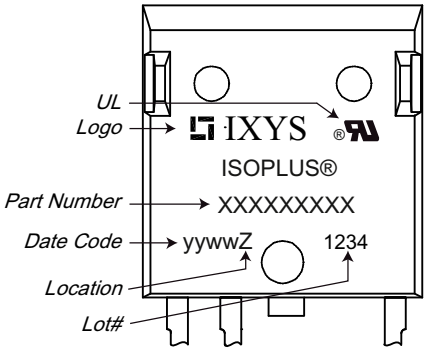
Applications:
- controlled rectifiers
  - power supplies
  - drives
- AC switches
- capacitor discharge control
  - flash tubes
  - X-ray and laser generators

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

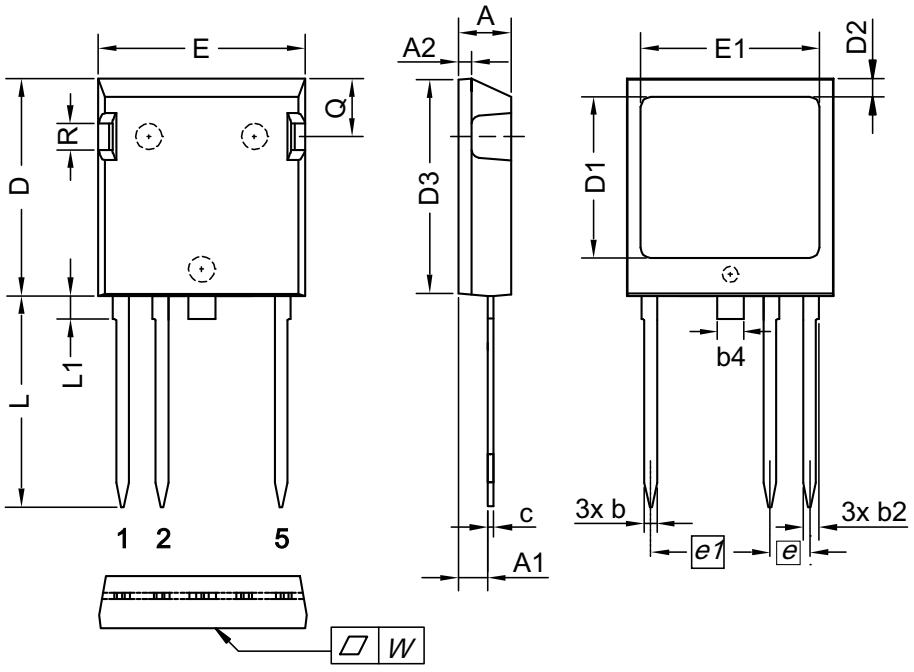
Thyristor			Ratings			
Symbol	**Definitions**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
$V_{DRM, RRM}$	*max. repetitive blocking voltage*				2200	V
$I_{T(AV)}$	*average forward current*	sine 180° T_C = 90°C			18	A
$I_{T(AV)}$		square; d = $^1/_3$ T_C = 90°C			16	A
I_{TSM}	*max. surge on-state current*	sine 180°; t = 10 ms; V_R = 0 V T_{VJ} = 25°C			200	A
$(di/dt)_{cr}$	*critical rate of rise of current*	$T_{VJ} = T_{VJM}$; f = 50 Hz; t_p = 200 µs; repetitive, I_T = 40 A			100	A/µs
		$V_D = {}^2/_3\ V_{DRM}$; I_G = 0.45 A; di_G/dt = 0.45 A/µs; non repetitive, I_T = 20 A			250	A/µs
$(dv/dt)_{cr}$	*critical rate of rise of voltage*	$T_{VJ} = T_{VJM}$; $V_D = {}^2/_3\ V_{DRM}$; R_{GK} = ∞; method 1 (linear voltage rise)			2500	V/µs
V_T	*forward voltage*	I_T = 20 A T_{VJ} = 25°C		1.3	1.5	V
		T_{VJ} = 125°C		1.3		V
V_{GT}	*gate trigger voltage*	V_D = 6 V T_{VJ} = 25°C			2.3	V
I_{GT}	*gate trigger current*				250	mA
V_{GD}	*gate non-trigger voltage*	$V_D = {}^2/_3\ V_{DRM}$ T_{VJ} = 125°C			0.2	V
I_{GD}	*gate non-trigger current*				5	mA
I_L	*latching current*	t_p = 10 µs; V_D = 6 V; I_G = 0.45 A; di_G/dt = 0.45 A/µs T_{VJ} = 25°C			500	mA
I_H	*holding current*	V_D = 6 V; R_{GK} = ∞ T_{VJ} = 25°C			150	mA
t_{gd}	*gate controlled delay time*	$V_D = {}^1/_2\ V_{DRM}$; I_G = 0.45 A; di_G/dt = 0.45 A/µs T_{VJ} = 25°C		2		µs
I_R	*reverse current*	$V_R = V_{RRM}$; $V_D = V_{DRM}$ T_{VJ} = 25°C			50	µA
I_D	*drain current*	T_{VJ} = 125°C		2		mA
R_{thJC}	*thermal resistance juntion 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
$d_{Spp/App}$ $d_{Spb/Apb}$	*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	50/60 Hz, RMS, $I_{ISOL} \leq 1$ mA	3000			V
		t = 1 minute		2500			V

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
b2	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