

# High Voltage Phase Control Thyristor

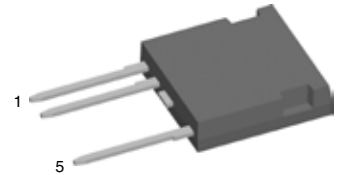
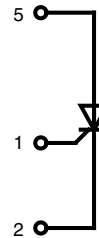
## in High Voltage ISOPLUS i4-PAC™

$$V_{DRM} = V_{RRM} = 2500 \text{ V}$$

$$I_{T(AV)} = 18 \text{ A}$$

$$I_{TSM} = 200 \text{ A}$$

$V_{RSM}$ $V_{DSM}$ V	$V_{RRM}$ $V_{DRM}$ V	Type
2500	2500	CS 20-25mo1F



Thyristor						
Symbol	Conditions	Maximum Ratings				
$V_{DRM / RRM}$		2500	V			
$I_{T(AV)}$	sine 180°; $T_C = 90^\circ\text{C}$	18	A			
$I_{T(AV)}$	square; $d = 1/3$ ; $T_C = 90^\circ\text{C}$	16	A			
$I_{TSM}$	sine 180°; $t = 10 \text{ ms}$ ; $V_R = 0 \text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$	200	A			
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 40 \text{ A}$ $f = 50 \text{ Hz}$ ; $t_p = 200 \mu\text{s}$	100	A/ $\mu\text{s}$			
	$V_D = 2/3 V_{DRM}$ non repetitive, $I_T = 20 \text{ A}$ $I_G = 0.45 \text{ A}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$	250	A/ $\mu\text{s}$			
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$ ; $V_D = 2/3 V_{DRM}$ $R_{GK} = \infty$ ; method 1 (linear voltage rise)	2500	V/ $\mu\text{s}$			
		Characteristic Values ( $T_{VJ} = 25^\circ\text{C}$ , unless otherwise specified)				
Symbol	Conditions					
		typ.	max.			
$V_T$	$I_T = 20 \text{ A}$ ;		$T_{VJ} = 25^\circ\text{C}$	1.3	1.5	V
			$T_{VJ} = 125^\circ\text{C}$	1.3		
$V_{GT}$	$V_D = 6 \text{ V}$			2.3		V
$I_{GT}$				250		mA
$V_{GD}$	$V_D = 2/3 V_{DRM}$ ;		$T_{VJ} = T_{VJM}$	0.2		V
$I_{GD}$				5		mA
$I_L$	$t_p = 10 \mu\text{s}$ ; $V_D = 6 \text{ V}$ $I_G = 0.45 \text{ A}$ ; $di_G/dt = 0.45 \text{ A}/\mu\text{s}$			500		mA
$I_H$	$V_D = 6 \text{ V}$ ; $R_{GK} = \infty$			150		mA
$t_{gd}$	$V_D = 1/2 V_{DRM}$ $I_G = 0.45 \text{ A}$ ; $di_G/dt = 0.45 \text{ A}/\mu\text{s}$			2		$\mu\text{s}$
$I_R, I_D$	$V_R = V_{RRM}$ ; $V_D = V_{DRM}$ ;		$T_{VJ} = 25^\circ\text{C}$	50		$\mu\text{A}$
			$T_{VJ} = 125^\circ\text{C}$	2		mA
$R_{thJC}$	DC current			0.92		K/W

### Features

- 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

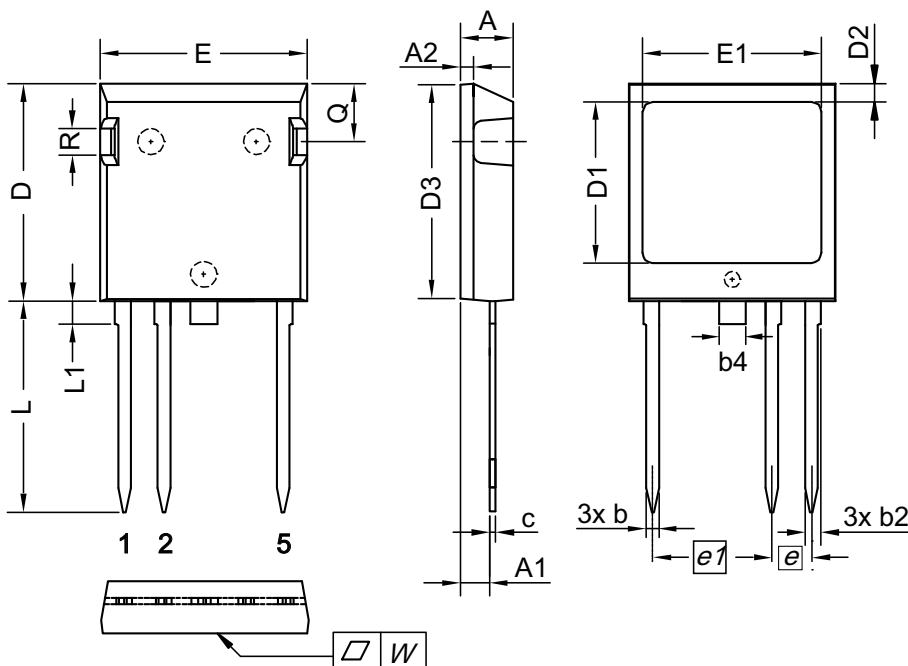
- controlled rectifiers
  - power supplies
  - drives
- AC switches
- capacitor discharge control
  - flash tubes
  - X-ray and laser generators

Component		
Symbol	Conditions	Maximum Ratings
$T_{VJ}$		-40 ... +125 °C
$T_{stg}$		-55 ... +125 °C
$V_{ISOL}$	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500 V~
$F_C$	mounting force with clip	20...120 N

Symbol	Conditions	Characteristic Values	
		min.	typ.
$d_s, d_A$	A pin - K pin	7	mm
	pin - backside metal	5.5	mm
$R_{thCH}$	with heatsink compound		0.15 K/W
<b>Weight</b>			5.5 g

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 convexbow of substrate is typ. < 0.05 mm over plastic surface level of device bottom side