

# Phase Control Thyristor

## ISOPLUS220™

### Electrically Isolated Back Surface

$$V_{RRM} = 800 - 1200 \text{ V}$$

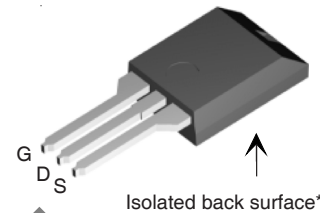
$$I_{T(RMS)} = 35 \text{ A}$$

$$I_{T(AV)M} = 13 \text{ A}$$

$V_{RSM}$ $V_{DSM}$ V	$V_{RRM}$ $V_{DRM}$ V	Type
800	800	CS 19-08ho1C
1200	1200	CS 19-12ho1C



ISOPLUS 220™



Symbol	Test Conditions	Maximum Ratings	
$I_{T(RMS)}$	$T_{VJ} = T_{VJM}$	35	A
$I_{T(AV)M}$	$T_C = 85^\circ\text{C}; 180^\circ \text{ sine}$	13	A
$I_{TSM}$	$T_{VJ} = 45^\circ\text{C}; V_R = 0 \text{ V}$	t = 10 ms (50 Hz), sine	100 A
		t = 8.3 ms (60 Hz), sine	105 A
$I^2t$	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	85 A <sup>2</sup> s
	$V_R = 0 \text{ V}$	t = 8.3 ms (60 Hz), sine	90 A <sup>2</sup> s
$(di/dt)_{cr}$	$T_{VJ} = 45^\circ\text{C}$	t = 10 ms (50 Hz), sine	50 A <sup>2</sup> s
	$V_R = 0 \text{ V}$	t = 8.3 ms (60 Hz), sine	45 A <sup>2</sup> s
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$	repetitive, $I_T = 20 \text{ A}$	100 A/ $\mu\text{s}$
	$R_{GK} = \infty$ ; method 1 (linear voltage rise)	$f = 50 \text{ Hz}, t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.08 \text{ A}$ $di_G/dt = 0.08 \text{ A}/\mu\text{s}$	500 A/ $\mu\text{s}$
$P_{GM}$	$T_{VJ} = T_{VJM}$	$t_p = 30 \mu\text{s}$	5 W
$P_{GAV}$	$I_T = I_{T(AV)M}$	$t_p = 300 \mu\text{s}$	2.5 W
$V_{RGM}$			0.5 W
$T_{VJ}$			10 V
$T_{VJM}$		-40...+125	°C
$T_{stg}$		125	°C
$V_{ISOL}$	50/60 Hz RMS; $I_{ISOL} \leq 1 \text{ mA}$	2500	V~
$T_L$	1.6mm from case; 10s	260	°C
$F_C$	Mounting force	11...65 / 2.4...11	N / lb
<b>Weight</b>		2	g

#### Features

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- Silicon chip on Direct-Copper-Bond substrate
- High power dissipation
- Isolated mounting surface
- 2500V electrical isolation
- Low cathode-to-tab capacitance (15pF typical)
- Planar passivated chips
- Epoxy meets UL 94V-0
- High performance glass passivated chip
- Long-term stability of leakage current and blocking voltage

#### Applications

- Motor control
- Power converter
- AC power controller
- Light and temperature control
- SCR for inrush current limiting in power supplies or AC drive

#### Advantages

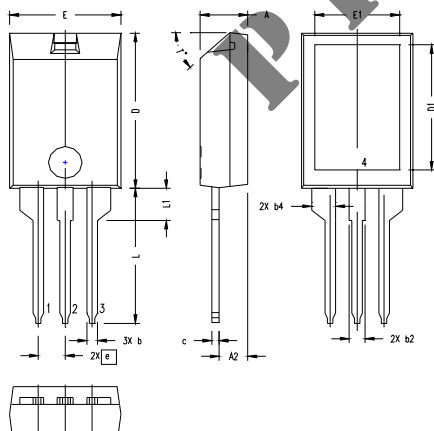
- Space and weight savings
- Simple mounting

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

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Symbol	Test Conditions	Characteristic Values	
$I_R, I_D$	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	$\leq$	1 mA
$V_T$	$I_T = 30 \text{ A}; T_{VJ} = 25^\circ\text{C}$	$\leq$	1.65 V
$V_{T0}$	For power-loss calculations only ( $T_{VJ} = 125^\circ\text{C}$ )		0.87 V
$r_T$			29 m $\Omega$
$V_{GT}$	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	$\leq$	1.5 V
	$T_{VJ} = -40^\circ\text{C}$	$\leq$	2.5 V
$I_{GT}$	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	$\leq$	25 mA
	$T_{VJ} = -40^\circ\text{C}$	$\leq$	50 mA
$V_{GD}$	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	$\leq$	0.2 V
$I_{GD}$		$\leq$	3 mA
$I_L$	$T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}$ $I_G = 0.08 \text{ A}; di_G/dt = 0.08 \text{ A}/\mu\text{s}$	$\leq$	75 mA
$I_H$	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	$\leq$	50 mA
$t_{gd}$	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.08 \text{ A}; di_G/dt = 0.08 \text{ A}/\mu\text{s}$	$\leq$	2 $\mu\text{s}$
$R_{thJC}$	DC current		1.7 K/W
$R_{thCK}$	DC current	typical	0.6 K/W
<b>a</b>	Max. acceleration, 50 Hz		50 m/s <sup>2</sup>

**ISOPLUS220 OUTLINE**


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.157	.197	4.00	5.00
A2	.098	.118	2.50	3.00
b	.035	.051	0.90	1.30
b2	.049	.065	1.25	1.65
b4	.093	.100	2.35	2.55
c	.028	.039	0.70	1.00
D	.591	.630	15.00	16.00
D1	.472	.512	12.00	13.00
E	.394	.433	10.00	11.00
E1	.295	.335	7.50	8.50
e	.100 BASIC		2.55 BASIC	
L	.512	.571	13.00	14.50
L1	.118	.138	3.00	3.50
T°			42.5°	47.5°

**NOTE:**

- Bottom heatsink (Pin 4) is electrically isolated from Pin 1, 2, or 3.
- This drawing will meet dimensional requirement of JEDEC SS Product Outline TO-273 except D and D1 dimension.