

Phase Control Thyristor

ISOPLUS220™

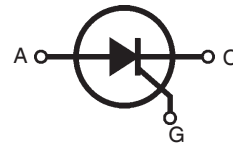
Electrically Isolated Back Surface

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

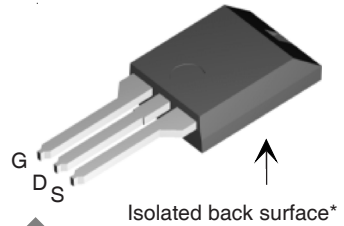
$$I_{T(RMS)} = 35 \text{ A}$$

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

| 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} | $T_{VJ} = 45^\circ\text{C}; V_R = 0 \text{ V}$ | $t = 10 \text{ ms (50 Hz), sine}$ | 100 A |
| | | $t = 8.3 \text{ ms (60 Hz), sine}$ | 105 A |
| I^2t | $T_{VJ} = T_{VJM}; V_R = 0 \text{ V}$ | $t = 10 \text{ ms (50 Hz), sine}$ | 85 A ² s |
| | | $t = 8.3 \text{ ms (60 Hz), sine}$ | 90 A ² s |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ repetitive, $I_T = 20 \text{ A}$ $f = 50 \text{ Hz}, t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ | | 100 A/ μs |
| | $I_G = 0.08 \text{ A}$ non repetitive, $I_T = I_{T(AV)M}$ $di_G/dt = 0.08 \text{ A}/\mu\text{s}$ | | 500 A/ μs |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}; V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise) | | 500 V/ μs |
| 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; $I_{ISOL} \leq 1 \text{ mA}$ | -40...+125 | °C |
| T_L | 1.6mm from case; 10s | 2500 | V~ |
| F_C | Mounting force | 260 | °C |
| Weight | | 11...65 / 2.4...11 | N / lb |
| | | 2 | g |

Features

Features

- 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

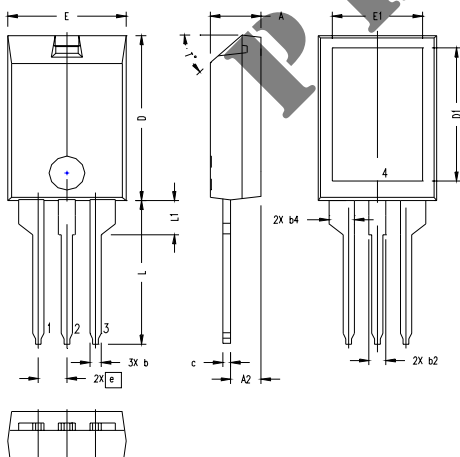
- Motor control
- Power converter
- AC power controller
- Light and temperature control
- SCR for inrush current limiting in power supplies or AC drive

Advantages

- Space and weight savings
- Simple mounting

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

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.