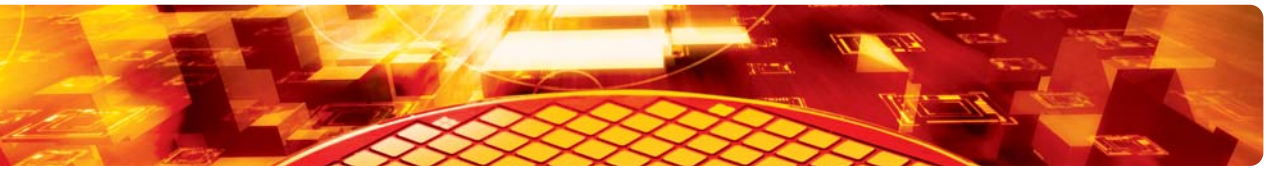
cynergy3 components™

# CYNA/CYNB 25

*25Amp - 400/600/800/1000V - SCR*

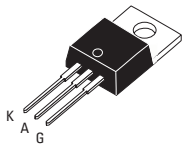


## Applications

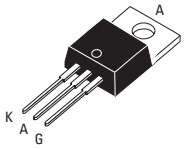
- *Motor Control*
- *Overvoltage Crowbar Protection*
- *Capacitive Discharge Ignition*
- *Voltage Regulation*
- *Welding Equipment*
- *Capacitive Filter Soft Start (Inrush Current Control)*

- ***Suitable for General Purpose AC Switching***
- ***IGT 40 mA Max.***
- ***Isolated and Non-Isolated Tab***
- ***$V_{DRM}/V_{RMM}$ 400, 600, 800, 1000V***

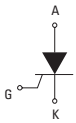



TO-220AB Isolated
(CYNA25)




TO-220AB Non-Isolated
(CYNB25)




## *Absolute Maximum Ratings*

| | | CONDITIONS | SYMBOL | RATING |
|---|---|---|---|---|
| RMS On-State Current (full sine wave) | Tc = 100°C<br>Tc = 75°C | TO-220AB<br>TO-220AB Iso | $I_{T(RMS)}$ | 25A |
| Average On-State Current | Tc = 100°C<br>Tc = 75°C | TO-220AB<br>TO-220AB Iso | $I_{T(RMS)}$ | 16A |
| Non Repetitive Surge Peak On-State Current (Full Cycle, Tj Initial = 25°C) | | F = 50 Hz<br>F = 60 Hz | $I_{TSM}$ | 320A<br>350A |
| $I^2t$ Value for fusing | | tp = 10 ms | $I^2t$ | 510$A^2s$ |
| Critical rate of rise of on-state current $I_G$=2 x $I_{GT}$ , tr<100 ns, $T_j$ = 125°C | | F = 60 Hz | di/dt | 50A/µs |
| Peak Gate Current @ $T_j$ = 125°C | | tp = 20 µs | $I_{GM}$ | 4A |
| Average Gate Power Dissipation @ Tj = 125°C | | | PG(AV) | 1W |
| Storage Temperature Range | | | $T_{stg}$ | -40 to +150°C |
| Operating Junction Temperature Range | | | $T_j$ | -40 to +125°C |
| Isolation Voltage (CYNA Series only) | | | $V_{ISO}$ | 2500$V_{RMS}$ |
| Maximum Peak Reverse Gate Voltage | | | $V_{RGM}$ | 5V |

## *Electrical Characteristics* NOTE 1

| | | |
|---|---|---|
| $I_{GT}$ MAX @ $V_D$ =12 V, $R_L$ = 30Ω | | 40mA |
| $V_{GT}$ MAX @ $V_D$ =12 V, $R_L$ = 30Ω | | 1.3V |
| $V_{GD}$ MIN @ $V_D$ =$V_{DRM}$, $R_L$ = 3.3kΩ | Tj = 125°C | 0.2V |
| $I_H$ MAX @ $I_T$ = 500 mA (gate open) | | 50mA |
| $I_L$ MAX @ $I_G$ = 1.2 $I_{GT}$ | | 90mA |
| dv/dt MIN @ $V_D$ = 67%$V_{DRM}$ (gate open) | Tj = 125°C | 1000V/µs |
| $V_{TM}$ MAX @ $I_{TM}$ =32 A, tp = 380µs | Tj = 25°C | 1.6V |
| $I_{DRM}$ MAX @ $V_{DRM}$ = $V_{RRM}$ | Tj = 25°C | 5µA |
| $I_{RRM}$ MAX @ $V_{DRM}$ = $V_{RRM}$ | Tj = 125°C | 4mA |

**GENERAL NOTES**

1. All parameters at 25 degrees C unless otherwise specified.

cynergy3 components™

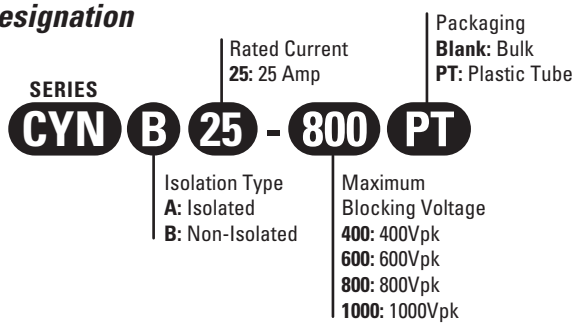
# CYNA/CYNB 25

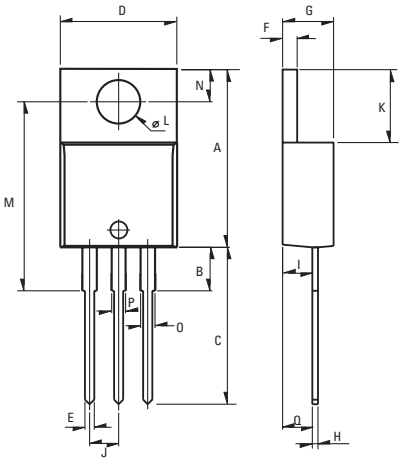
*25Amp - 400/600/800/1000V - SCR*

## *Thermal Resistances*

| | | SYMBOL | RATING |
|---|---|---|---|
| Junction to Case (AC) | TO-220AB | $R_{th(j-c)}$ | 1.0°C/W |
| Junction to Case (AC) | TO-220AB Isolated | $R_{th(j-c)}$ | 1.9°C/W |
| Junction to Ambient | TO-220AB | $R_{th(j-a)}$ | 60°C/W |
| Junction to Ambient | TO-220AB Isolated | $R_{th(j-a)}$ | 60°C/W |

## *Part Number Designation*




Weight: 2.3g (0.08 oz)

## *Dimensions*

| | Millimeters | | | Inches | | |
|---|---|---|---|---|---|---|
| REF. | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 15.24 | | 15.75 | 0.6 | | 0.62 |
| B | | 3.23 | | | 0.127 | |
| C | 12.78 | | 13.79 | 0.503 | | 0.543 |
| D | 9.96 | | 10.36 | 0.392 | | 0.408 |
| E | 0.69 | | 0.94 | 0.027 | | 0.037 |
| F | 1.22 | | 1.32 | 0.048 | | 0.052 |
| G | 4.62 | | 4.83 | 0.182 | | 0.19 |
| H | 0.46 | | 0.61 | 0.018 | | 0.024 |
| I | 2.49 | | 2.84 | 0.098 | | 0.112 |
| J | 2.39 | | 2.69 | 0.094 | | 0.106 |
| K | 6.48 | | 6.88 | 0.255 | | 0.271 |
| L | 3.78 | | 3.89 | 0.149 | | 0.153 |
| M | 15.49 | 16 | 16.51 | 0.61 | 0.63 | 0.65 |
| N | 2.59 | | 2.9 | 0.102 | | 0.114 |
| O | 0.99 | | 1.55 | 0.039 | | 0.061 |
| P | 0.99 | | 1.55 | 0.039 | | 0.061 |
| Q | | 2.67 | | | 0.105 | |

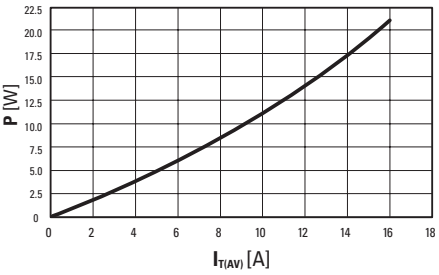



**Fig. 1:** Power dissipation versus average on-state current.

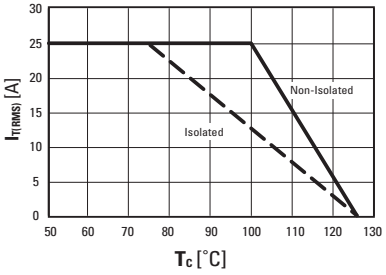



**Fig. 2:** RMS on-state current versus case temperature (full cycle)

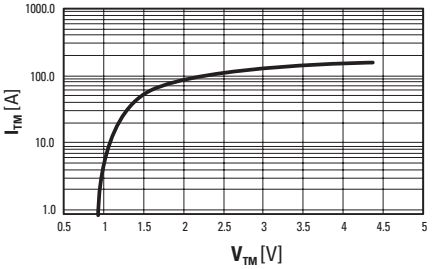



**Fig. 3:** On-state current versus on-state voltage (instantaneous values)

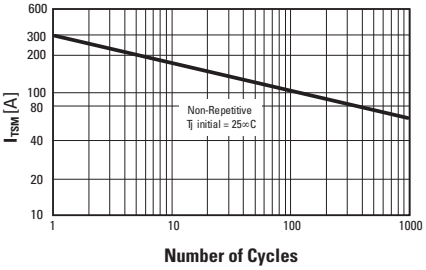



**Fig. 4:** Non-repetitive surge peak on-state current versus number of cycles.

ISO9001 CERTIFIED

## *Approvals*

*UL Recognized Component - E72445 (CYNA Series)*


**USA**
*Sales & Tech Support* (866) 258-5057
*Email:* sales@cynergy3.com
Cynergy3 Components
2320 Paseo de las Americas, Suite 104
San Diego, CA 92154

**EUROPE - UK**
*Telephone* +44 (0) 1202 897969
*Fax* +44 (0) 1202 891918
*Email:* sales@cynergy3.com
Cynergy3 Components Ltd.
7 Cobham Road
Ferndown Industrial Estate
Wimborne, Dorset BH21 7PE

**ASIA - Thailand**
*Telephone* +66 (0)2 665 2517
*Fax* +66 (0)2 665 2588
Cynergy 3 Components, Asia
18/8 Fico Place 12th Floor
Soi Sukhumvit 21 (Asoke)
Klongtoey Nua, Wattana
Bangkok, Thailand 10110



© 2006 Cynergy3 components, All Rights Reserved. Specifications are subject to change without prior notice. Cynergy3 components and the Cynergy3 components logo are trademarks of Cynergy3 components Corp.