



TN25 and TYNx25 Series

STANDARD

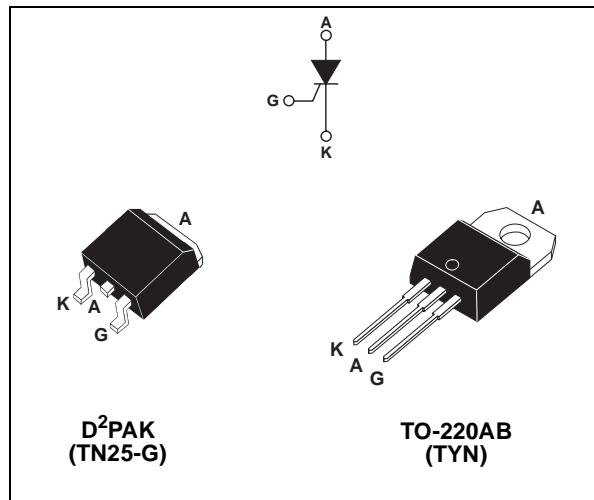
25A SCRs

MAIN FEATURES:

| Symbol | Value | Unit |
|-------------------|-------------|------|
| $I_{T(RMS)}$ | 25 | A |
| V_{DRM}/V_{RRM} | 600 to 1000 | V |
| I_{GT} | 40 | mA |

DESCRIPTION

The TYN / TN25 SCR Series is suitable for general purpose applications. Using clip assembly technology, they provide a superior performance in surge current capabilities.



ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|--------------------|--|------------------------|---------------------------------|------------------------|
| $I_{T(RMS)}$ | RMS on-state current (180° conduction angle) | | $T_c = 100^\circ\text{C}$ 25 | A |
| $T_{(AV)}$ | Average on-state current (180° conduction angle) | | $T_c = 100^\circ\text{C}$ 16 | A |
| I_{TSM} | Non repetitive surge peak on-state current | $t_p = 8.3 \text{ ms}$ | $T_j = 25^\circ\text{C}$ 314 | A |
| | | $t_p = 10 \text{ ms}$ | | |
| I^2t | I^2t Value for fusing | $t_p = 10 \text{ ms}$ | $T_j = 25^\circ\text{C}$ 450 | A^2s |
| di/dt | Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100 \text{ ns}$ | $F = 60 \text{ Hz}$ | $T_j = 125^\circ\text{C}$ 50 | $\text{A}/\mu\text{s}$ |
| I_{GM} | Peak gate current | $t_p = 20 \mu\text{s}$ | $T_j = 125^\circ\text{C}$ 4 | A |
| $P_{G(AV)}$ | Average gate power dissipation | | $T_j = 125^\circ\text{C}$ 1 | W |
| T_{stg} T_j | Storage junction temperature range Operating junction temperature range | | - 40 to + 150 - 40 to + 125 | $^\circ\text{C}$ |
| V_{RGM} | Maximum peak reverse gate voltage | | 5 | V |

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ELECTRICAL CHARACTERISTICS (T_j = 25°C, unless otherwise specified)

| Symbol | Test Conditions | | | Value | Unit | |
|--------------------------------------|---|------------------------|------------------------|-------|------|----|
| I _{GT} | V _D = 12 V R _L = 33 Ω | | MIN. | 4 | mA | |
| | | | MAX. | 40 | | |
| V _{GT} | | | MAX. | 1.3 | V | |
| V _{GD} | V _D = V _{DRM} R _L = 3.3 kΩ | T _j = 125°C | MIN. | 0.2 | V | |
| I _H | I _T = 500 mA Gate open | | MAX. | 50 | mA | |
| I _L | I _G = 1.2 I _{GT} | | MAX. | 90 | mA | |
| dV/dt | V _D = 67 % V _{DRM} Gate open | T _j = 125°C | MIN. | 1000 | V/μs | |
| V _{TM} | I _{TM} = 50 A tp = 380 μs | T _j = 25°C | MAX. | 1.6 | V | |
| V _{t0} | Threshold voltage | | T _j = 125°C | MAX. | 0.77 | V |
| R _d | Dynamic resistance | | T _j = 125°C | MAX. | 14 | mΩ |
| I _{DRM} I _{RRM} | V _{DRM} = V _{RRM} | | T _j = 25°C | MAX. | 5 | μA |
| | | | T _j = 125°C | | 4 | mA |

THERMAL RESISTANCES

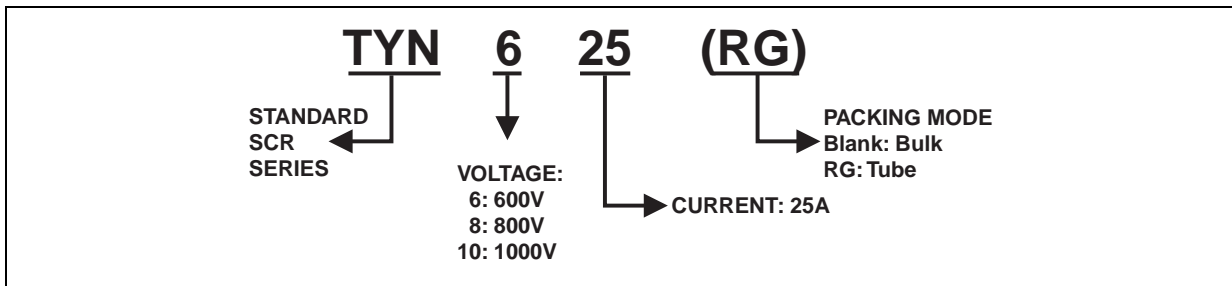
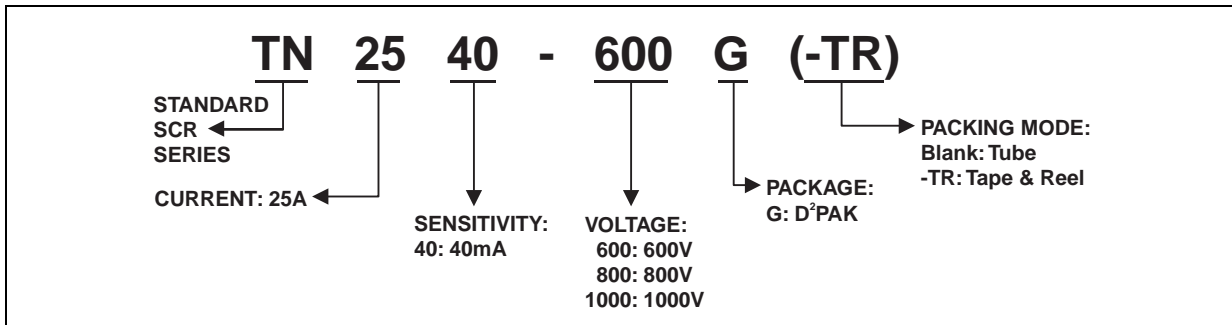
| Symbol | Parameter | | Value | Unit | |
|----------------------|--------------------------|--|---|------|------|
| R _{th(j-c)} | Junction to case (DC) | | 1.0 | °C/W | |
| R _{th(j-a)} | Junction to ambient (DC) | | TO-220AB | 60 | °C/W |
| | | | S = 1 cm ² D ² PAK | 45 | |

S = Copper surface under tab

PRODUCT SELECTOR

| Part Number | Voltage (xxx) | | | Sensitivity | Package |
|-------------|---------------|-------|--------|-------------|--------------------|
| | 600 V | 800 V | 1000 V | | |
| TN2540-xxxG | X | X | X | 40 mA | D ² PAK |
| TYNx25 | X | X | X | 40 mA | TO-220AB |

ORDERING INFORMATION



OTHER INFORMATION

| Part Number | Marking | Weight | Base Quantity | Packing mode |
|----------------|------------|--------|---------------|--------------|
| TN2540-x00G | TN2540x00G | 1.5 g | 50 | Tube |
| TN2540-x00G-TR | TN2540x00G | 1.5 g | 1000 | Tape & reel |
| TYNx25 | TYNx25 | 2.3 g | 250 | Bulk |
| TYNx25RG | TYNx25 | 2.3 g | 50 | Tube |

Note: x = voltage

Fig. 1: Maximum average power dissipation versus average on-state current.

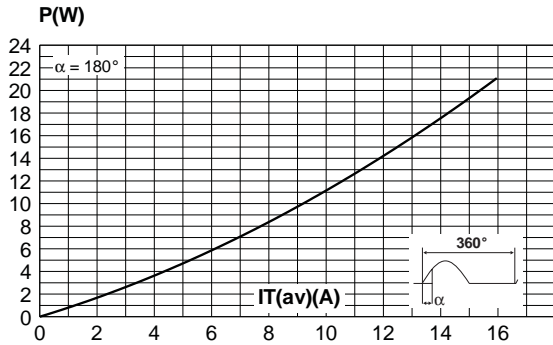


Fig. 2-1: Average and D.C. on-state current versus case temperature.

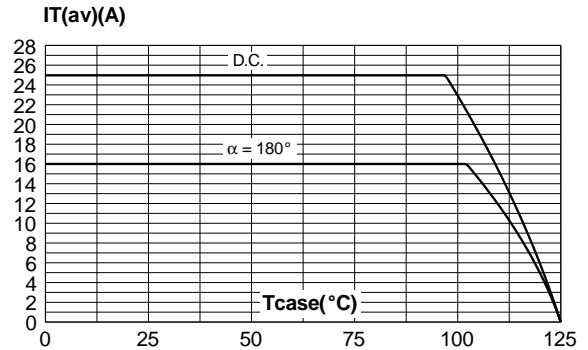


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (copper surface under tab: S = 1 cm² for D²PAK).

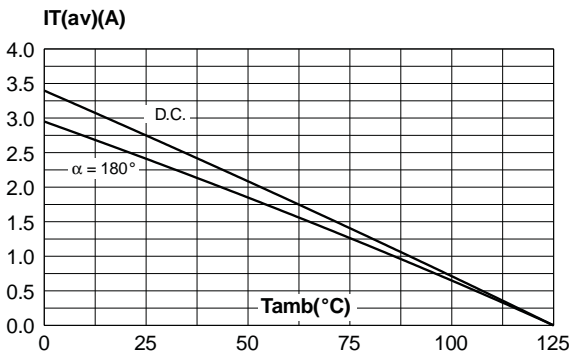


Fig. 3: Relative variation of thermal impedance versus pulse duration.

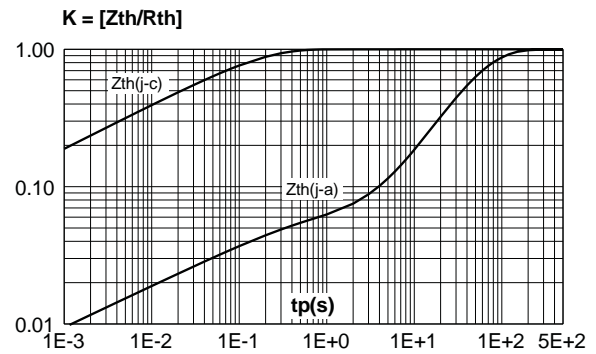


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

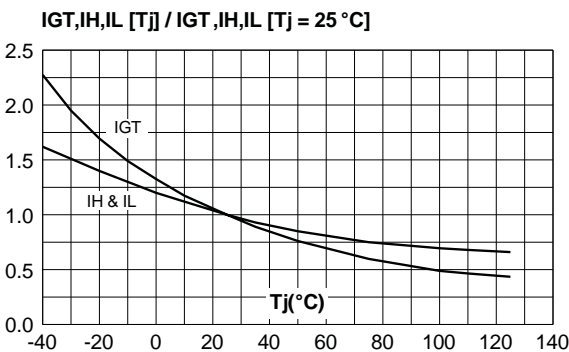


Fig. 5: Surge peak on-state current versus number of cycles.

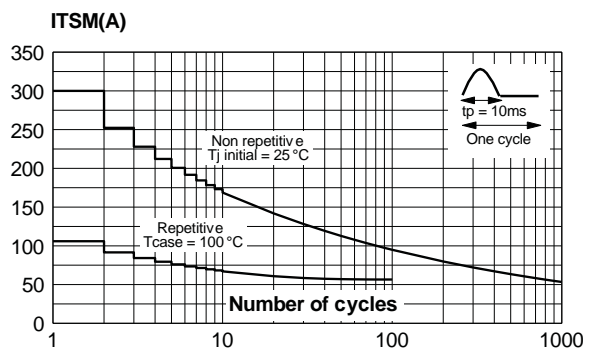


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding values of I^2t .

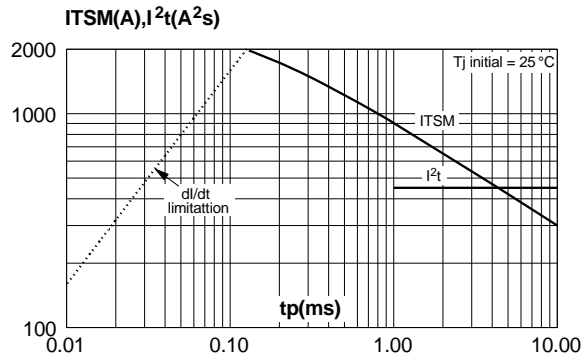


Fig. 7: On-state characteristics (maximum values).

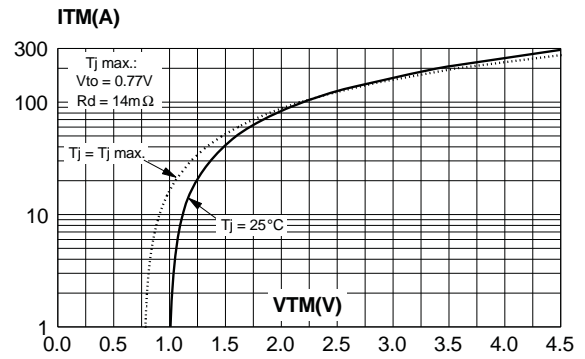
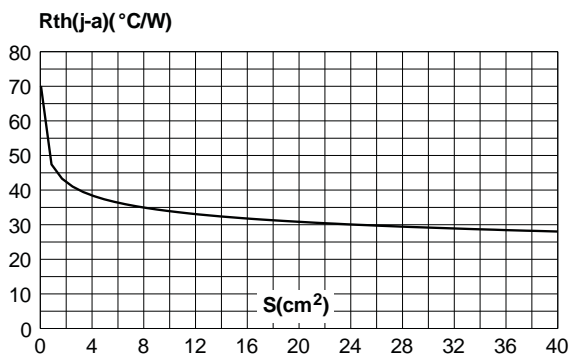


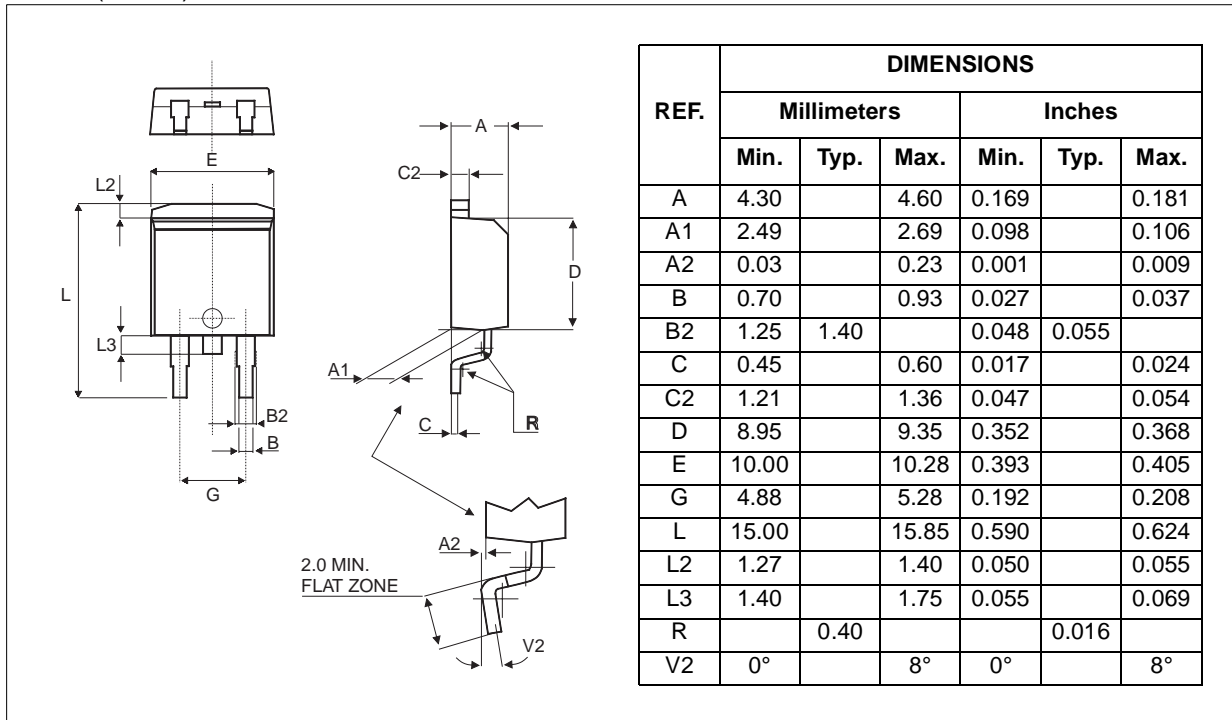
Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 μ m) (D^2 PAK).



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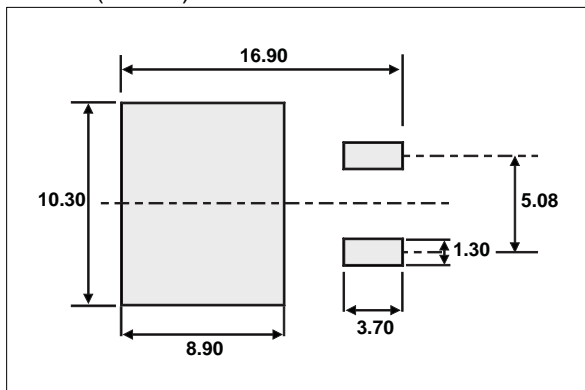
PACKAGE MECHANICAL DATA

D²PAK (Plastic)



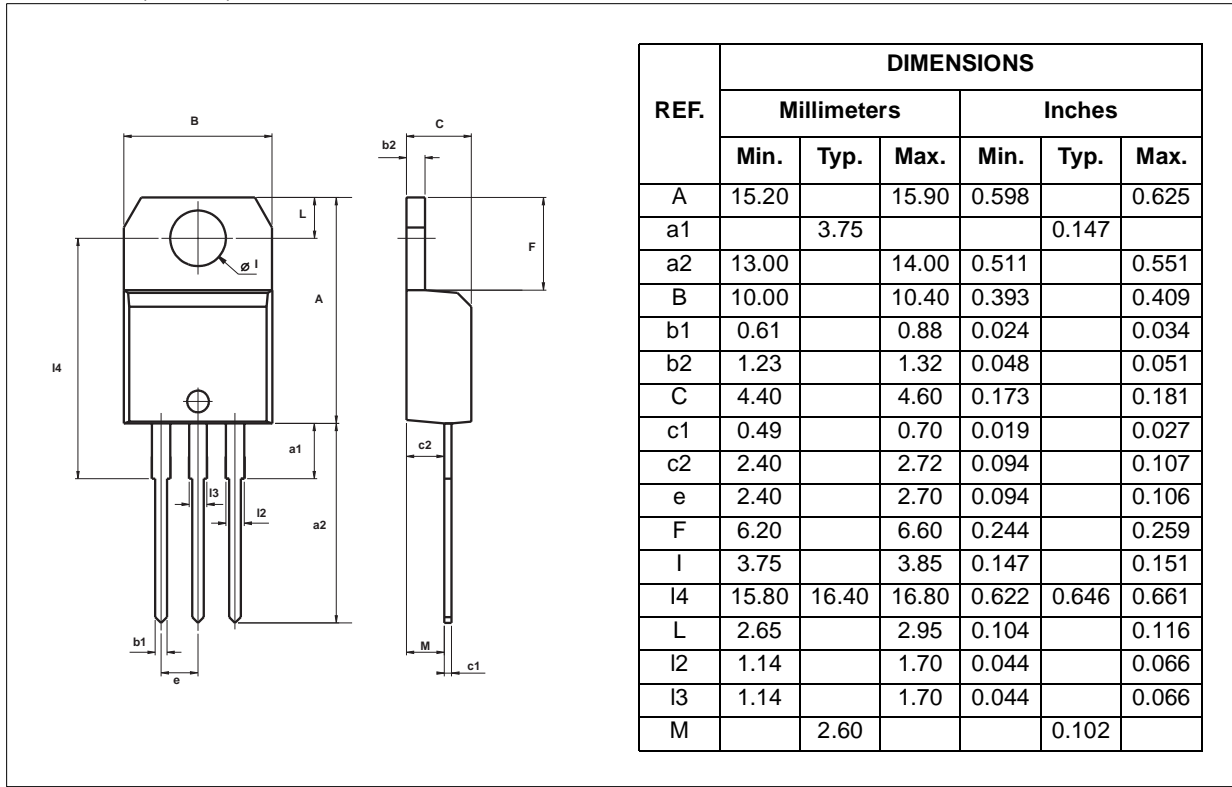
FOOTPRINT DIMENSIONS (in millimeters)

D²PAK (Plastic)



PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



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