



Jiangsu Weida Semiconductor Co., Ltd.

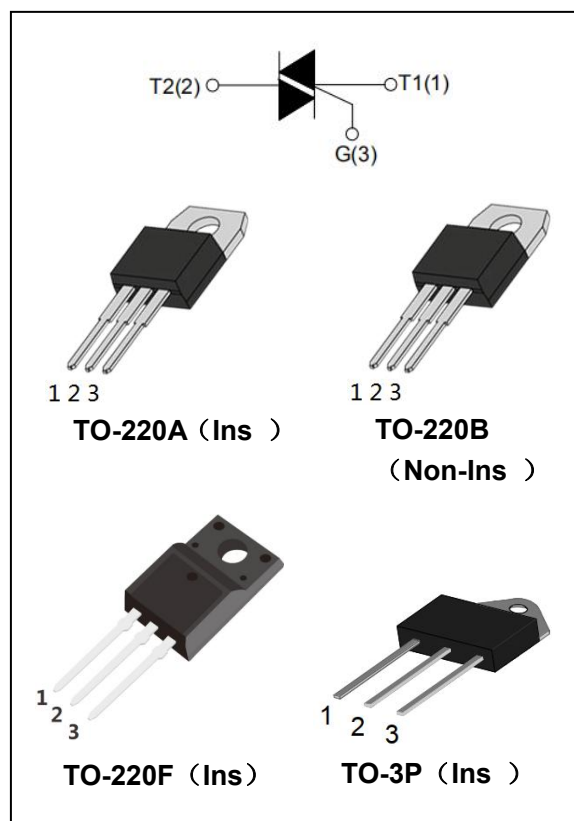
T30**H 30A High Junction Temperature Triacs

DESCRIPTION:

T30**H triacs of high junction temperature with high dv/dt rate with strong resistance to electromagnetic interference provide high ability to withstand the shock loading of large current. They are especially recommended for use on inductive load and high environment temperature condition.

MAIN FEATURES:

| symbol | value | unit |
|-------------------|---------|------|
| $I_{T(RMS)}$ | 30.0 | A |
| V_{DRM}/V_{RRM} | 600/800 | V |



ABSOLUTE MAXIMUM RATINGS:

| Parameter | Symbol | Value | Unit |
|---|--------------|---------|------------------------|
| Storage junction temperature range | T_{stg} | -40~150 | °C |
| Operating junction temperature range | T_j | -40~150 | °C |
| Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$) | V_{DRM} | 600/800 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 600/800 | V |
| RMS on-state current | $I_{T(RMS)}$ | 30 | A |
| Non repetitive surge peak on-state current (full cycle, F=50Hz) | I_{TSM} | 300 | A |
| I^2t value for fusing ($t_p=10\text{ms}$) | I^2t | 340 | A^2s |
| Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$) | di/dt | 50 | $\text{A}/\mu\text{s}$ |
| Peak gate current | I_{GM} | 4 | A |



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| | | | |
|--------------------------------|-------------|----|---|
| Average gate power dissipation | $P_{G(AV)}$ | 1 | W |
| Peak gate power | P_{GM} | 10 | W |

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Test Condition | Quadrant | | Value | | Unit |
|-----------|---|-------------|-----|-------|-------|------------------|
| | | | | T3035 | T3050 | |
| I_{GT} | $V_D=12\text{V}$, $R_L=33\Omega$ | I - II -III | MAX | 35 | 50 | mA |
| V_{GT} | | | | 1.5 | | V |
| V_{GD} | $V_D=V_{DRM}$ | I - II -III | MIN | 0.2 | | V |
| I_H | $I_T=100\text{mA}$ | | MAX | 45 | 60 | mA |
| I_L | $I_G=1.2I_{GT}$ | I -III | MAX | 50 | 70 | mA |
| | | II | | 70 | 90 | |
| dV/dt | $V_D=2/3V_{DRM}$ $T_j=150^\circ\text{C}$ Gate open | | MIN | 500 | 1000 | V/ μs |

STATIC CHARACTERISTICS

| Symbol | Test Condition | | | Value | Unit |
|------------------------|--|-------------------------|-----|-------|---------------|
| V_{TM} | $I_{TM}=35\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^\circ\text{C}$ | MAX | 1.5 | V |
| I_{DRM} I_{RRM} | $V_{DRM}=V_{RRM}$ | $T_j=25^\circ\text{C}$ | MAX | 10 | μA |
| | | $T_j=125^\circ\text{C}$ | | 3 | mA |

THERMAL RESISTANCES

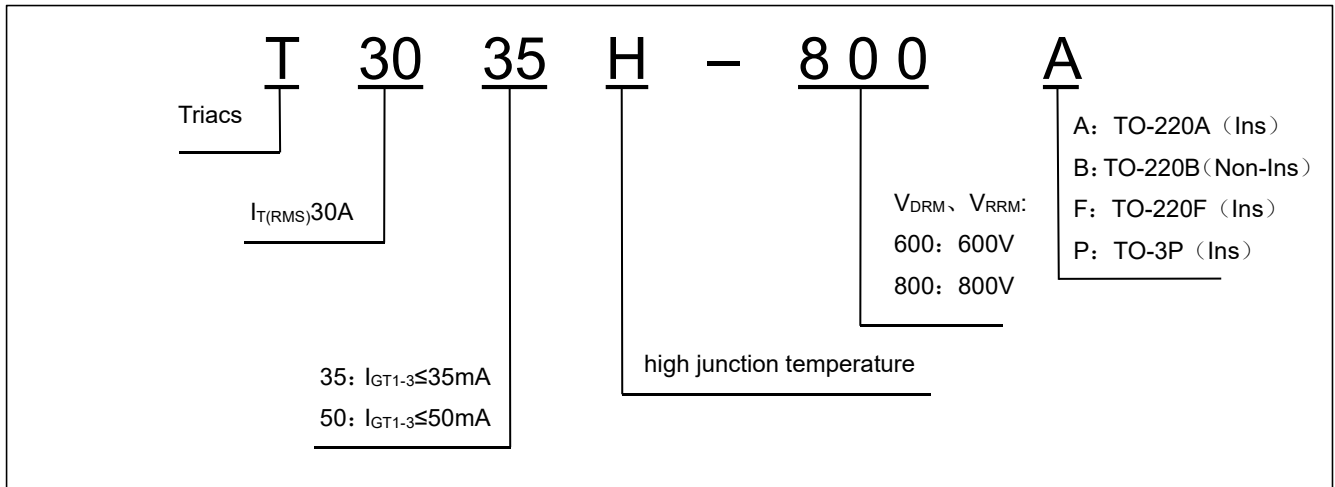
| Symbol | Test Condition | | Value | Unit |
|---------------|----------------------|------------------|-------|--------------------|
| $R_{th(j-c)}$ | junction to case(AC) | TO-220A(Ins) | 1.7 | $^\circ\text{C/W}$ |
| | | TO-220B(Non-Ins) | 1.8 | |
| | | TO-220F(Ins) | 1.8 | |
| | | TO-220F(Ins) | 0.85 | |



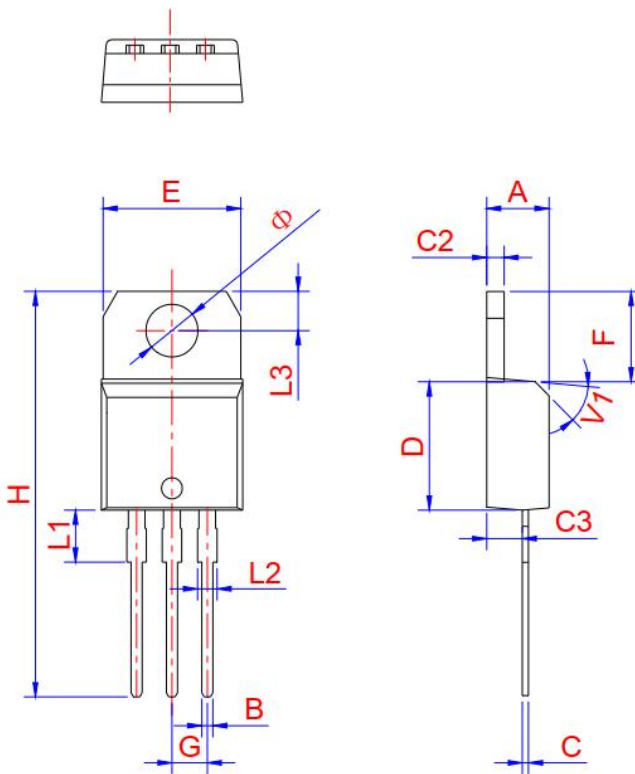
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ORDERING INFORMATION



PACKAGE MECHANICAL DATA



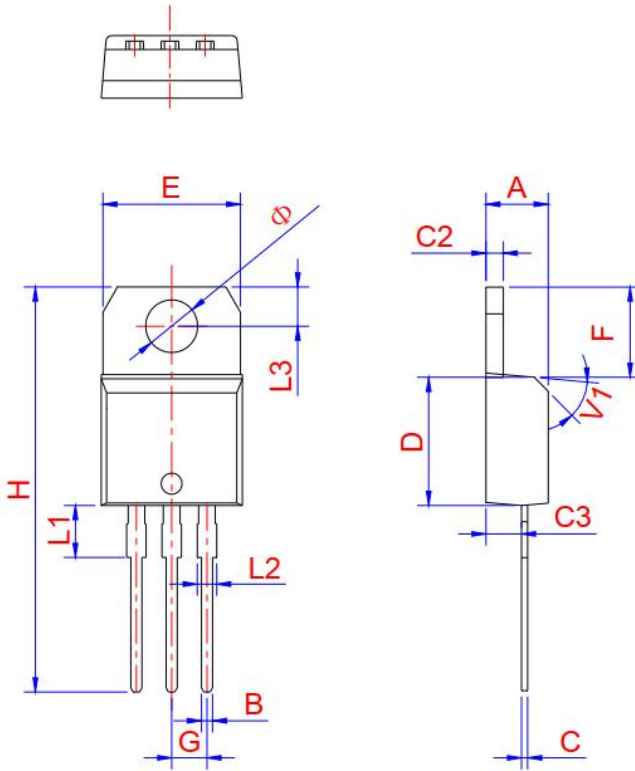
TO-220A Ins

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.4 | 4.47 | 4.6 | 0.173 | 0.176 | 0.181 |
| B | 0.61 | | 0.88 | 0.024 | | 0.035 |
| C | 0.46 | 0.50 | 0.7 | 0.018 | 0.02 | 0.028 |
| C2 | 1.21 | 1.27 | 1.32 | 0.048 | 0.050 | 0.052 |
| C3 | 2.4 | | 2.72 | 0.094 | | 0.107 |
| D | 8.6 | | 9.7 | 0.339 | | 0.382 |
| E | 9.8 | | 10.4 | 0.386 | | 0.409 |
| F | 6.55 | | 6.95 | 0.258 | | 0.274 |
| G | | 2.54 | | | 0.1 | |
| H | 28 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.75 | | | 0.148 | |
| L2 | 1.14 | | 1.7 | 0.045 | | 0.067 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| V1 | | 45° | | | 45° | |
| Φ | 3.7 | 3.75 | 3.8 | 0.145 | 0.147 | 0.149 |



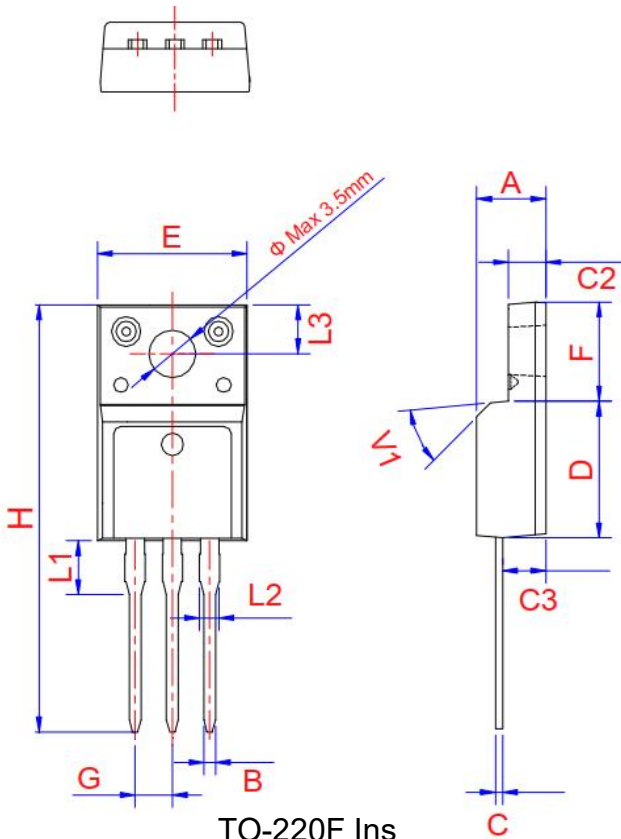
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TO-220B Non-Ins

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.4 | 4.47 | 4.6 | 0.173 | 0.176 | 0.181 |
| B | 0.61 | | 0.88 | 0.024 | | 0.035 |
| C | 0.46 | 0.50 | 0.7 | 0.018 | 0.02 | 0.028 |
| C2 | 1.21 | 1.27 | 1.32 | 0.048 | 0.050 | 0.052 |
| C3 | 2.4 | | 2.72 | 0.094 | | 0.107 |
| D | 8.6 | | 9.7 | 0.339 | | 0.382 |
| E | 9.8 | | 10.4 | 0.386 | | 0.409 |
| F | 6.55 | | 6.95 | 0.258 | | 0.274 |
| G | | 2.54 | | | 0.1 | |
| H | 28 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.75 | | | 0.148 | |
| L2 | 1.14 | | 1.7 | 0.045 | | 0.067 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| V1 | | 45° | | | 45° | |
| Φ | 3.7 | 3.75 | 3.8 | 0.145 | 0.147 | 0.149 |



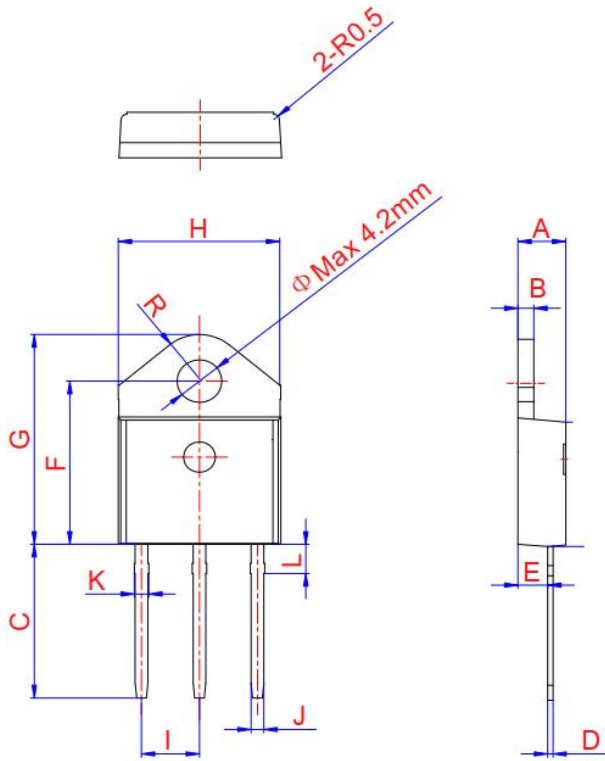
TO-220F Ins

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.5 | | 4.9 | 0.177 | | 0.193 |
| B | 0.74 | 0.8 | 0.83 | 0.029 | 0.031 | 0.033 |
| C | 0.47 | | 0.65 | 0.019 | | 0.026 |
| C2 | 2.45 | | 2.75 | 0.096 | | 0.108 |
| C3 | 2.6 | | 3 | 0.102 | | 0.118 |
| D | 8.8 | | 9.3 | 0.346 | | 0.366 |
| E | 9.8 | | 10.4 | 0.386 | | 0.41 |
| F | 6.4 | | 6.8 | 0.252 | | 0.268 |
| G | | 2.54 | | | 0.1 | |
| H | 28 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.63 | | | 0.148 | |
| L2 | 1.14 | | 1.7 | 0.045 | | 0.067 |
| L3 | 2.65 | 3.3 | 0 | | 0.13 | 0.116 |
| V1 | | 45° | | | 45° | |



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TO-3P Ins

| Ref. | Dimensions | | | | | |
|------|-------------|-------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.40 | 4.50 | 4.60 | 0.173 | 0.177 | 0.181 |
| B | 1.45 | 1.50 | 1.55 | 0.057 | 0.059 | 0.061 |
| C | 14.35 | | 15.60 | 0.565 | | 0.614 |
| D | 0.50 | 0.60 | 0.70 | 0.02 | 0.024 | 0.028 |
| E | 2.70 | 2.80 | 2.90 | 0.106 | 0.110 | 0.114 |
| F | 15.80 | | 16.50 | 0.622 | | 0.650 |
| G | 20.40 | | 21.10 | 0.803 | | 0.831 |
| H | 15.10 | 15.30 | 15.50 | 0.594 | 0.602 | 0.610 |
| I | 5.40 | | 5.65 | 0.213 | | 0.222 |
| J | 1.10 | | 1.40 | 0.043 | | 0.055 |
| K | 1.35 | | 1.50 | 0.053 | | 0.059 |
| L | 2.80 | 2.90 | 3.00 | 0.110 | 0.114 | 0.118 |
| R | | 4.35 | | | 0.171 | |

FIG.1: Maximum power dissipation versus RMS on-state current

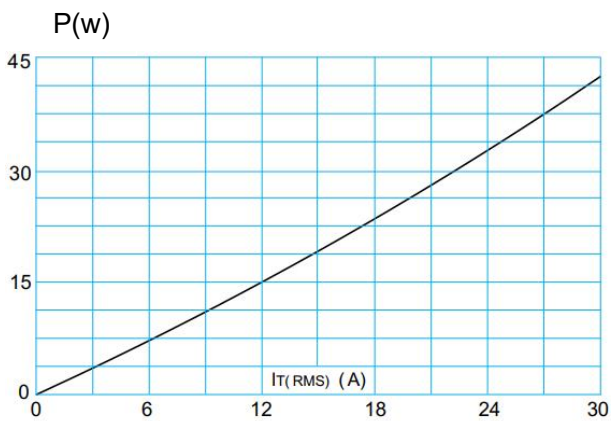
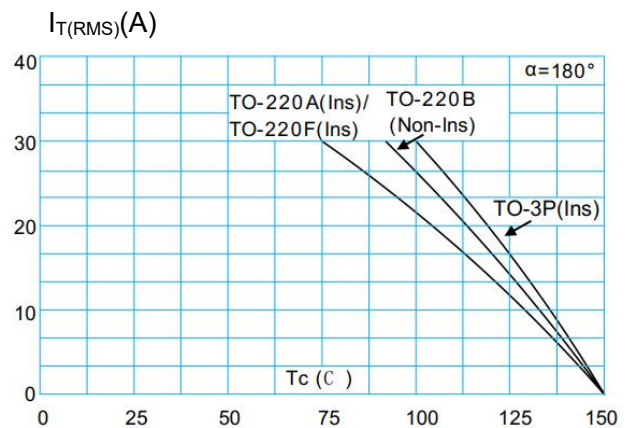


FIG.2: RMS on-state current versus case temperature





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FIG.3: Surge peak on-state current versus number of cycles

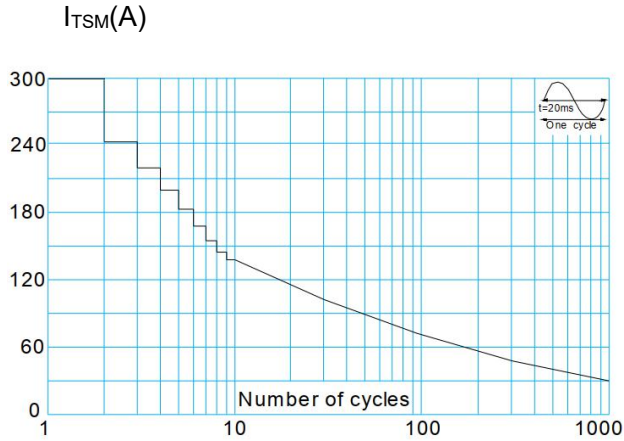


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II -III: $di/dt < 50\text{A}/\mu\text{s}$; IV: $di/dt < 10\text{A}/\mu\text{s}$)

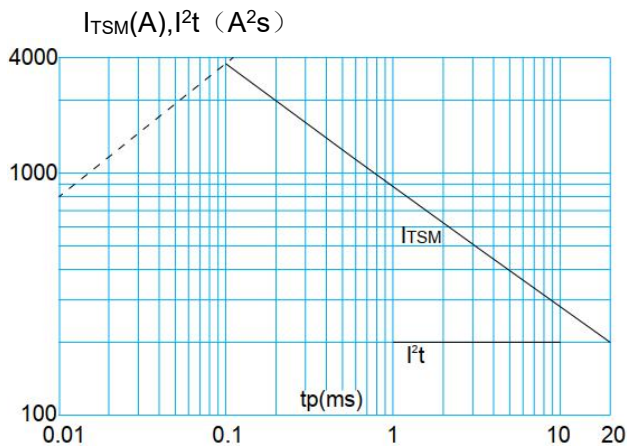


FIG.4: On-state characteristics (maximum values)

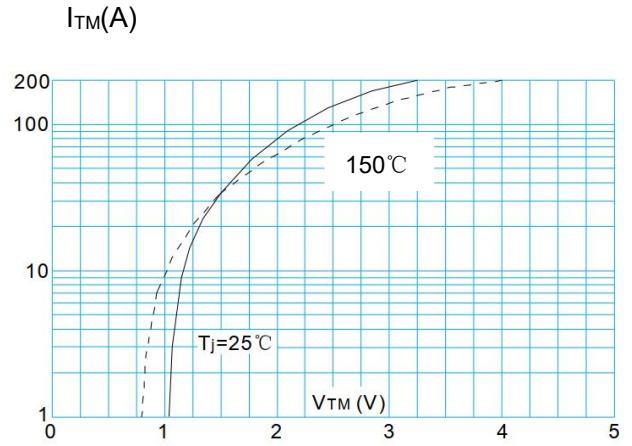
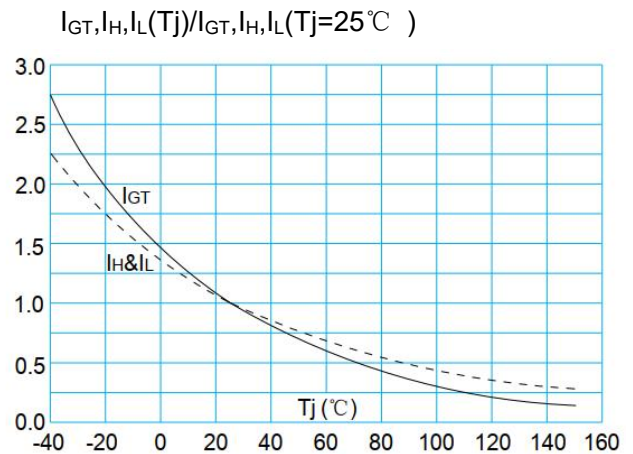


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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