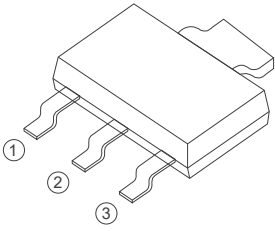
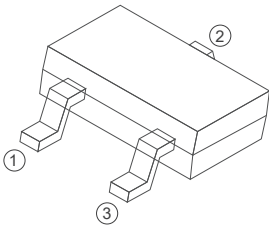


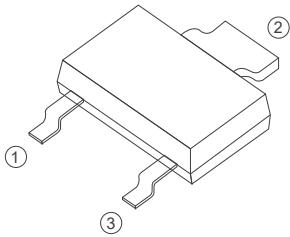
TO-92



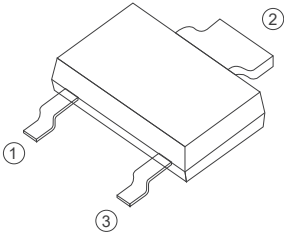
SOT-223



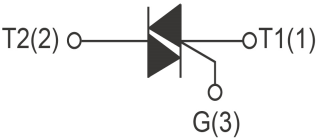
SOT-23-3L



SOT-223-2L



SOT-89-2L



FEATURES

- > IT(RMS): 1A
- > VGT: 1.5V
- > VDRM VRRM:600Vand800V

APPLICATIONS

Washing machine,vacuums, massager,solid state relay, AC Motor speed regulation and so on.

Absolute Maximum Ratings (T_J=25°C unless otherwise specified)

| Symbol | Parameter | Conditions | Ratings | Unit |
|------------------|-----------------------------------|--|---------|------------------|
| VDRM VRRM | Repetitive Peak Off-State Voltage | MAC97A6 | 600/800 | V |
| | | MAC97A8 | | |
| IT(RMS) | R.M.S On-State Current | T _c =110°C | 1 | A |
| ITSM | Surge On-State Current | T _p =10ms | 12 | |
| I ² t | I ² t for fusing | T _p =10ms | 0.72 | A ² s |
| PG(AV) | Average Gate Power Dissipation | T _J =125°C | 0.3 | W |
| IGM | Peak Gate Current | t _p =20us T _J =125°C | 1.2 | A |
| T _J | Operating Junction Temperature | | ~40~125 | °C |
| TSTG | Storage Temperature | | ~40~150 | |

Electrical Characteristics (T_J=25°C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Value | Unit | |
|--------|---|---|----------|------|-------|
| IDRM | Repetitive Peak Off-State Current | T _J =25°C | ≤10 | uA | |
| | | T _J =110°C | ≤200 | uA | |
| IRRM | Repetitive Peak Reverse Current | T _J =25°C | ≤10 | uA | |
| | | T _J =110°C | ≤200 | uA | |
| VTM | Forward "on" voltage | I _T =1.6A t _p =380us | ≤1.5 | V | |
| VGD | Gate non-trigger voltage | V _D =V _{DRM} , T _J =110°C | ≥0.2 | V | |
| IH | Holding current | V _D =12V ,I _{GT} =0.1A | I,II,III | ≤5 | mA |
| | | | IV | ≤10 | mA |
| VGT | Gate trigger voltage | V _D =12V | ≤1.2 | V | |
| IGT | Gate trigger current | V _D =12V | I,II,III | ≤3 | mA |
| | | | IV | ≤7 | mA |
| di/dt | Critical-rate of rise of commutation current. | I _T =1A I _G =0.2A, dI _G /dt=0.2A/us | I,II,III | ≥50 | A /us |
| | | | IV | ≥10 | A /us |
| dv/dt | Critical-rate of rise of commutation voltage | T _J =110°C V _D =2/3V _{DRM} | ≥30 | V/us | |

FIG1

Maximum power dissipation versus RMS on-state current

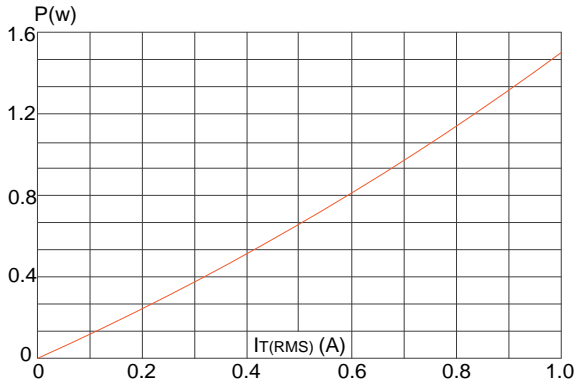


FIG2

RMS on-state current versus case temperature

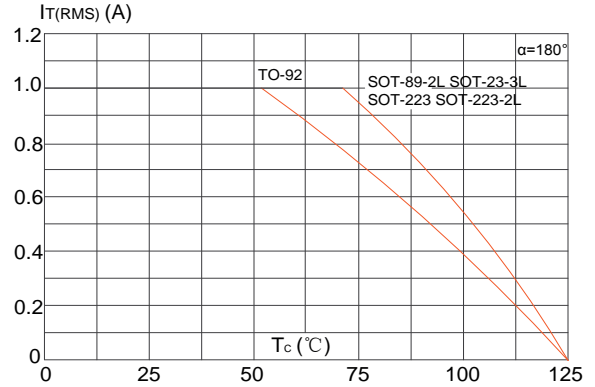


FIG3

Surge peak on-state current versus number of cycles

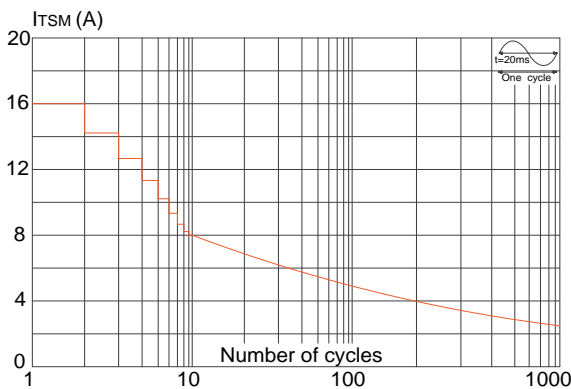


FIG4

On-state characteristics (maximum values)

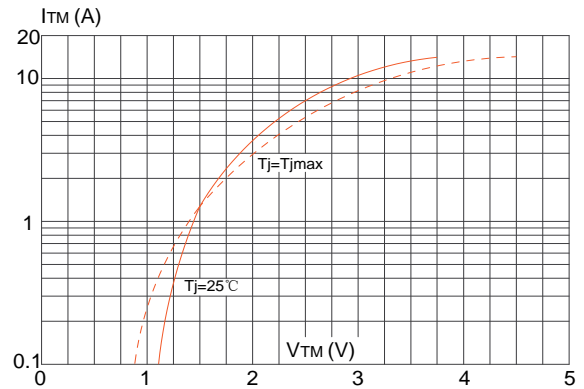


FIG5

Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($dI/dt < 100\text{A}/\mu\text{s}$)

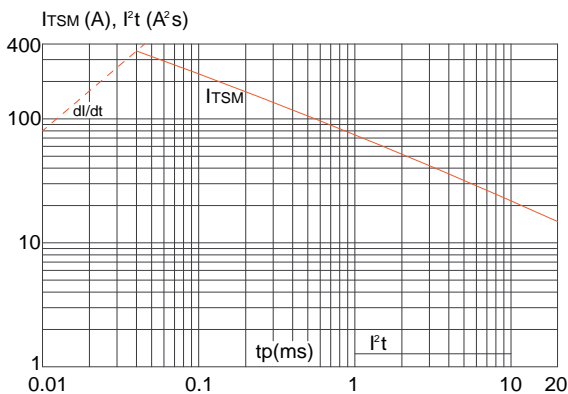
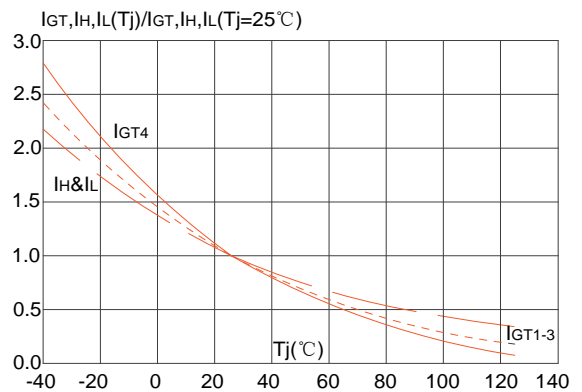
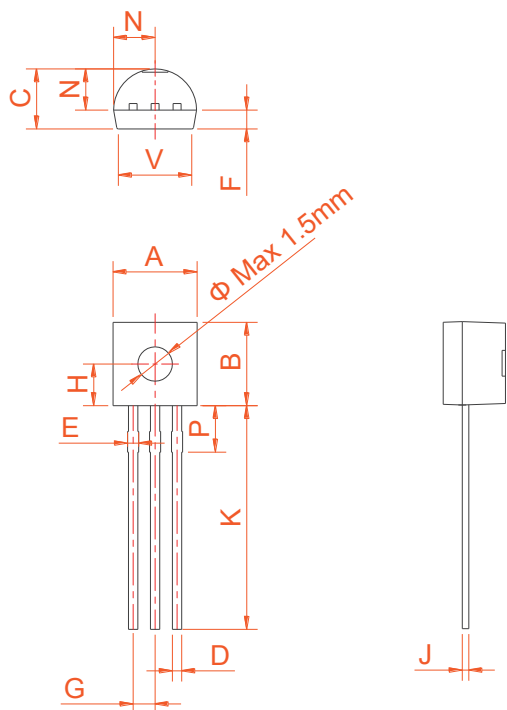


FIG6

Relative variations of gate trigger current, holding current and latching current versus junction temperature



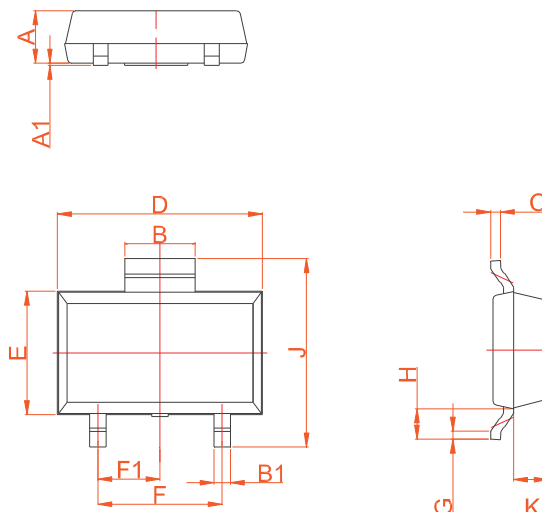
PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | | | |
|------|-------------|------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.45 | | 5.20 | 0.175 | | 0.205 |
| B | 4.32 | | 5.33 | 0.170 | | 0.210 |
| C | 3.18 | | 4.19 | 0.125 | | 0.165 |
| D | 0.407 | | 0.533 | 0.016 | | 0.021 |
| E | 0.60 | | 0.80 | 0.024 | | 0.031 |
| F | - | 1.1 | - | - | 0.043 | - |
| G | - | 1.27 | - | - | 0.050 | - |
| H | - | 2.30 | - | - | 0.091 | - |
| J | 0.36 | | 0.50 | 0.014 | | 0.020 |
| K | 12.70 | | 15.0 | 0.500 | | 0.591 |
| N | 2.04 | | 2.66 | 0.080 | | 0.105 |
| P | 1.86 | | 2.06 | 0.073 | | 0.081 |
| V | - | | 4.3 | - | | 0.169 |

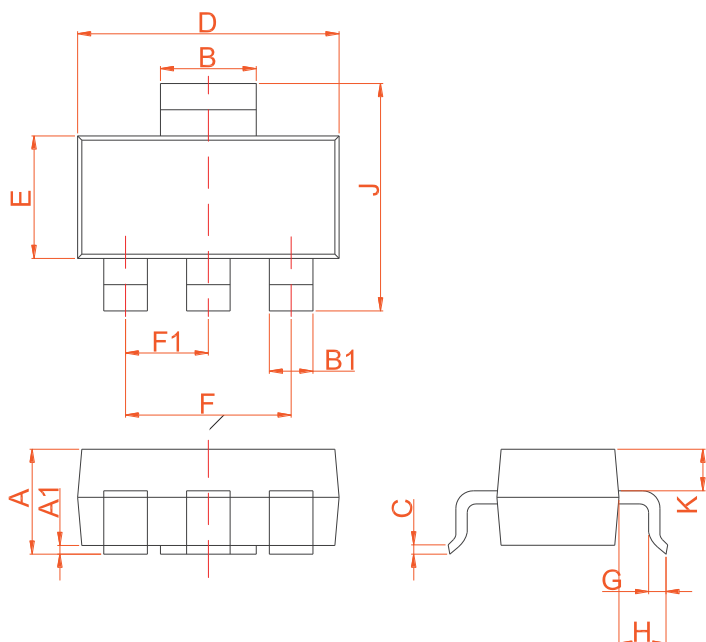
TO-92

| Ref. | Dimensions | | | | | |
|------|-------------|-------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.3 | 1.4 | 1.5 | 0.051 | 0.055 | 0.059 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| B | 1.6 | 1.7 | 1.8 | 0.063 | 0.067 | 0.071 |
| B1 | 0.3 | 0.4 | 0.5 | 0.012 | 0.016 | 0.020 |
| C | 0.22 | 0.254 | 0.32 | 0.009 | 0.010 | 0.013 |
| D | 4.75 | 4.95 | 5.15 | 0.187 | 0.195 | 0.203 |
| E | 2.75 | 2.95 | 3.15 | 0.108 | 0.116 | 0.124 |
| F | | 3.0 | | | 0.118 | |
| F1 | | 1.5 | | | 0.059 | |
| G | 0.2 | 0.3 | 0.4 | 0.008 | 0.012 | 0.016 |
| H | 0.58 | 0.78 | 0.98 | 0.023 | 0.031 | 0.039 |
| J | 4.3 | 4.5 | 4.7 | 0.169 | 0.177 | 0.185 |
| K | | 0.88 | | | 0.035 | |



SOT-89-2L

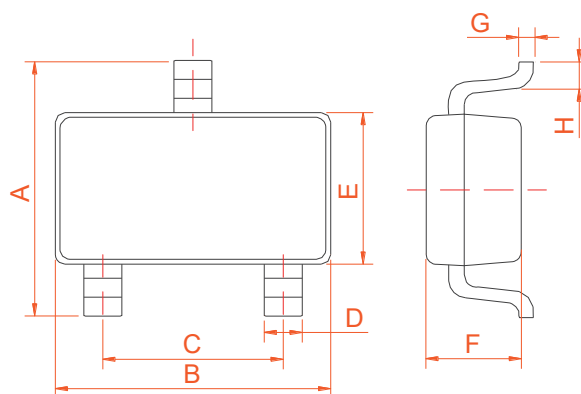
PACKAGE MECHANICAL DATA



SOT-223

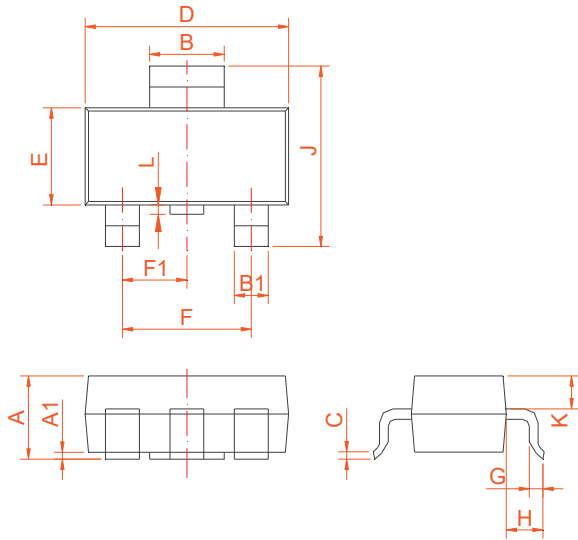
| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.5 | 1.6 | 1.8 | 0.059 | 0.063 | 0.071 |
| A1 | 0 | 0.06 | 0.10 | 0 | 0.002 | 0.004 |
| B | 2.9 | 3.0 | 3.1 | 0.114 | 0.118 | 0.122 |
| B1 | 0.6 | 0.7 | 0.8 | 0.024 | 0.028 | 0.031 |
| C | 0.22 | 0.26 | 0.32 | 0.009 | 0.010 | 0.013 |
| D | 6.3 | 6.5 | 6.7 | 0.248 | 0.256 | 0.264 |
| E | 3.3 | 3.5 | 3.7 | 0.130 | 0.138 | 0.146 |
| F | | 4.6 | | | 0.181 | |
| F1 | | 2.3 | | | 0.091 | |
| G | 0.7 | 0.9 | 1.1 | 0.028 | 0.035 | 0.043 |
| H | 1.5 | 1.75 | 2.0 | 0.059 | 0.069 | 0.079 |
| J | 6.7 | 7.0 | 7.3 | 0.264 | 0.276 | 0.287 |
| K | 0.8 | 0.9 | 1.0 | 0.031 | 0.035 | 0.039 |

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.65 | | 2.95 | 0.104 | | 0.116 |
| B | | 2.92 | | | 0.115 | |
| C | | 1.90 | | | 0.075 | |
| D | 0.34 | | 0.36 | 0.013 | | 0.014 |
| E | | 1.60 | | | 0.063 | |
| F | | 1.17 | | | 0.046 | |
| G | | 0.15 | | | 0.006 | |
| H | 0.25 | | 0.55 | 0.010 | | 0.022 |



SOT-23-3L

PACKAGE MECHANICAL DATA



SOT-223-2L

| Ref. | Dimensions | | | | | |
|------|-------------|-------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.50 | 1.60 | 1.80 | 0.059 | 0.063 | 0.071 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| B | 2.90 | 3.00 | 3.10 | 0.114 | 0.118 | 0.122 |
| B1 | 0.60 | 0.70 | 0.80 | 0.024 | 0.028 | 0.031 |
| C | 0.22 | 0.254 | 0.32 | 0.009 | 0.010 | 0.013 |
| D | 6.30 | 6.50 | 6.70 | 0.248 | 0.256 | 0.264 |
| E | 3.30 | 3.50 | 3.70 | 0.130 | 0.138 | 0.146 |
| F | | 4.60 | | | 0.181 | |
| F1 | | 2.30 | | | 0.091 | |
| G | 0.70 | 0.90 | 1.10 | 0.028 | 0.035 | 0.043 |
| H | 1.50 | 1.75 | 2.00 | 0.059 | 0.069 | 0.079 |
| J | 6.70 | 7.00 | 7.30 | 0.264 | 0.276 | 0.287 |
| K | | 0.90 | | | 0.035 | |
| L | 0 | 0.10 | 0.20 | 0 | 0.004 | 0.008 |