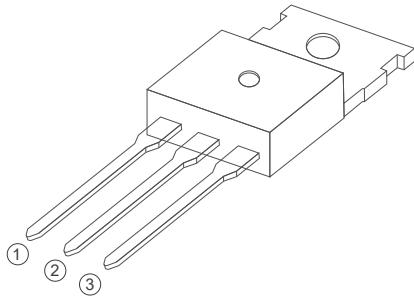
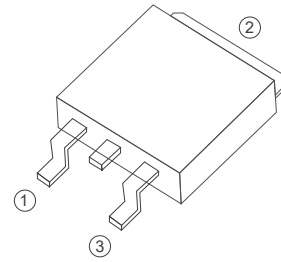


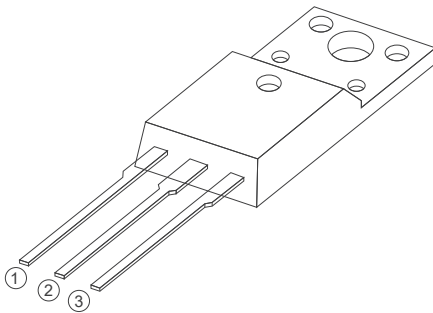
BT137 Series
8A TRIACs
4 Quadrants TRIACs



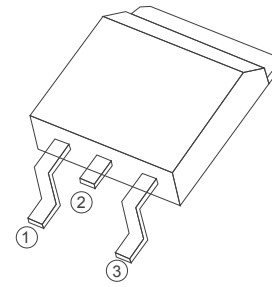
TO-220C



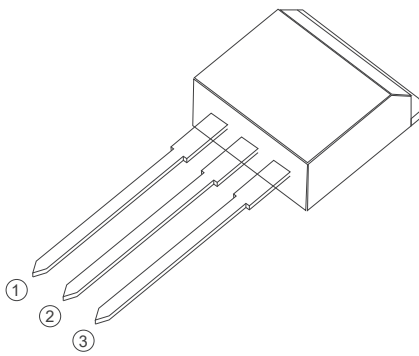
TO-252



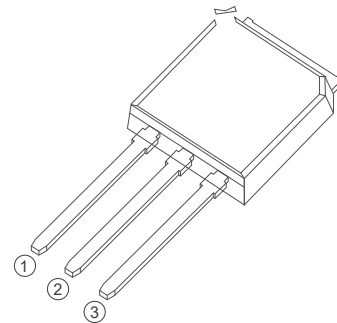
TO-220F Insulated



TO-263



TO-262



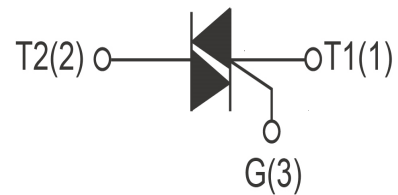
TO-251

FEATURES

> IT(RMS): 8A > VGT: 1.5V > VDRM VRRM:800V

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 | BT137-600 | 600 | V |
| | | BT137-800 | 800 | V |
| IT(RMS) | R.M.S On-State Current | T _c =110°C | 8 | A |
| ITSM | Surge On-State Current | t _p =16.7ms/t _p =10ms | 80/84 | A |
| I ² t | I ² t for fusing | T _p =10ms | 30 | A ² s |
| PG(AV) | Average Gate Power Dissipation | T _J =125°C | 1 | W |
| IGM | Peak Gate Current | T _J =125°C | 4 | A |
| T _J | Operating Junction Temperature | | ~40~125 | °C |
| TSTG | Storage Temperature | | ~40~150 | °C |

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

| Symbol | Parameter | Test Conditions | Value | | | | Unit |
|--------|---|--|-------|-----|-----|------|-------|
| | | | D | E | F | G | |
| IDRM | Repetitive Peak Off-State Current | T _J =25°C | ≤5 | | | | uA |
| | | T _J =125°C | ≤1 | | | | mA |
| IRRM | Repetitive Peak Reverse Current | T _J =25°C | ≤5 | | | | uA |
| | | T _J =125°C | ≤1 | | | | mA |
| VTM | Forward "on" voltage | IT=12A t _p =380us | ≤1.55 | | | | V |
| VGT | Gate trigger voltage | VD=12V ,RL=30Ω | ≤1.3 | | | | V |
| di/dt | Critical-rate of rise of commutation current. | VD=12V IGT==0.1A | ≥50 | | | | A /us |
| | | | ≥10 | | | | A /us |
| IGT | Gate trigger current | VD=12V RL=30Ω | ≤5 | ≤10 | ≤25 | ≤50 | mA |
| | | | ≤10 | ≤25 | ≤70 | ≤100 | mA |
| IH | Holding current | IT=0.2A | ≤10 | ≤25 | ≤30 | ≤60 | mA |
| VGD | Gate non-trigger voltage | ALL VD=VDRM T _J =125°C,RL=3.3KΩ | ≥0.2 | | | | V |
| dv/dt | Critical-rate of rise of commutation voltage | T _J =125°C VD=2/3VDRM Gate | ≥5 | ≥10 | ≥50 | ≥200 | V/us |

FIG1

Maximum power dissipation versus RMS on-state current

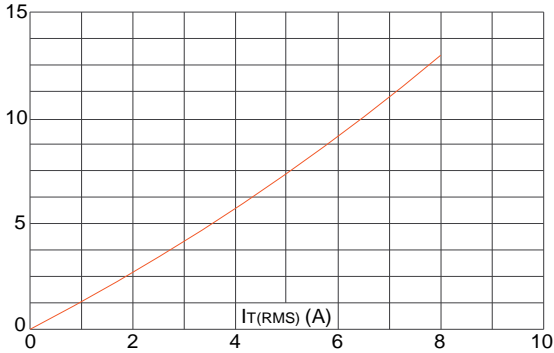


FIG2

RMS on-state current versus case temperature

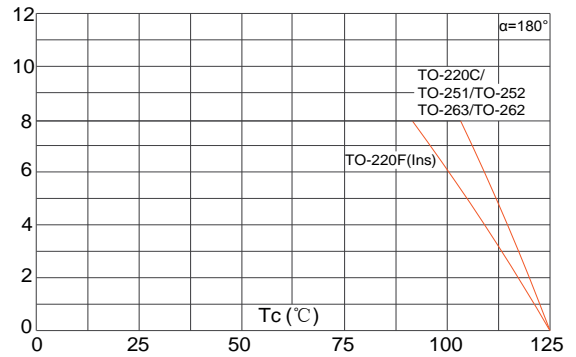


FIG3

Surge peak on-state current versus number of cycles

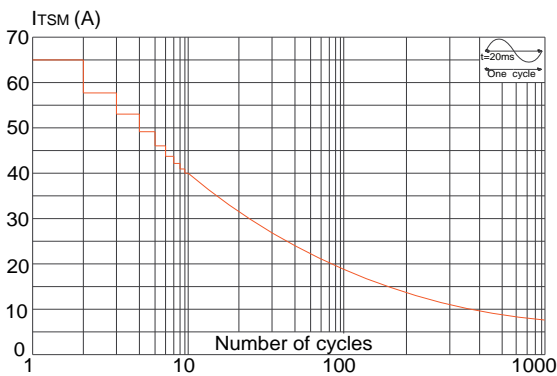


FIG4

On-state characteristics (maximum values)

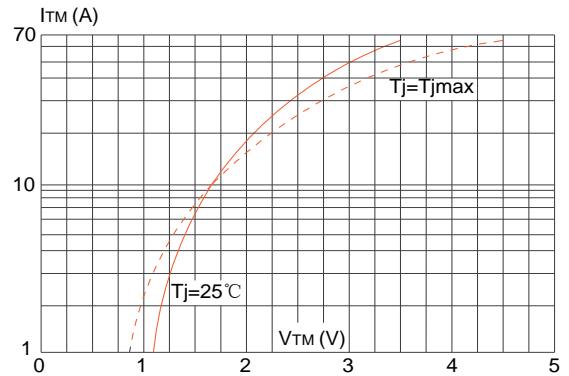


FIG5

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

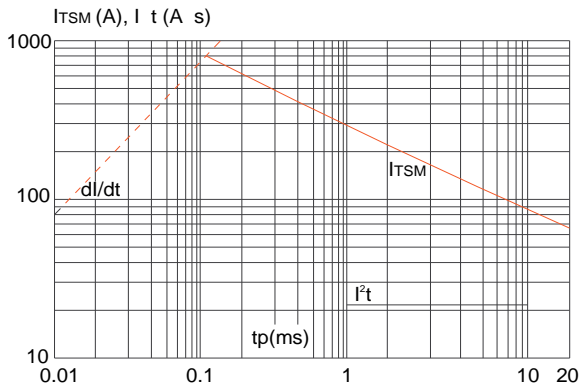


FIG6

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

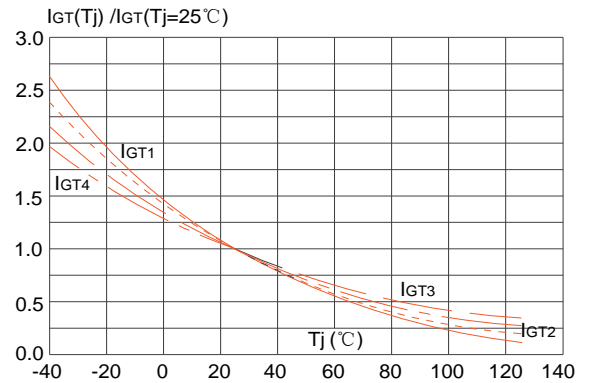


FIG7

FIG.7: Relative variations of holding current versus junction temperature

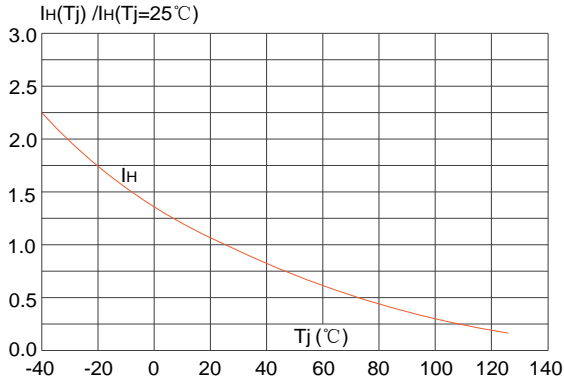
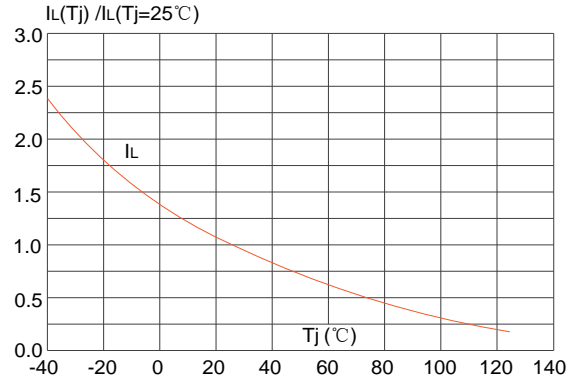
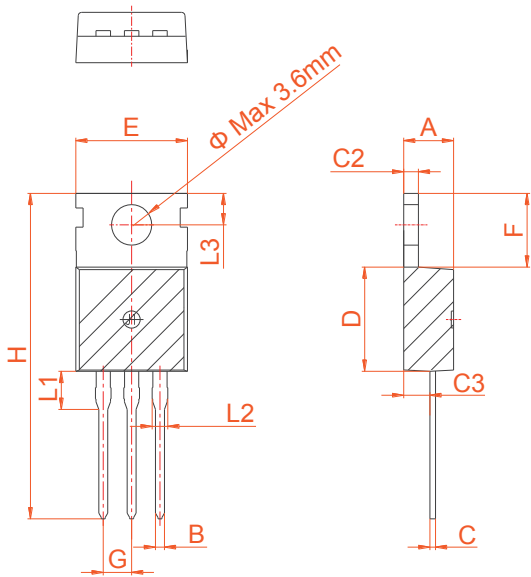


FIG8

FIG.8: Relative variations of latching current versus junction temperature



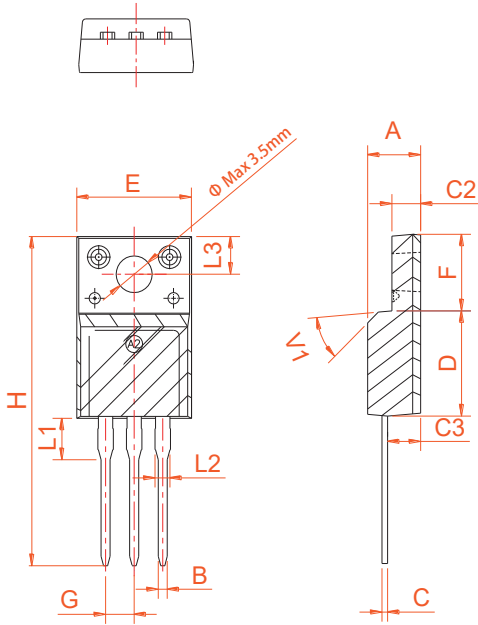
PACKAGE MECHANICAL DATA



TO-220C

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| B | 0.70 | | 0.90 | 0.028 | | 0.035 |
| C | 0.45 | | 0.60 | 0.018 | | 0.024 |
| C2 | 1.23 | | 1.32 | 0.048 | | 0.052 |
| C3 | 2.20 | | 2.60 | 0.087 | | 0.102 |
| D | 8.90 | | 9.90 | 0.350 | | 0.390 |
| E | 9.90 | | 10.3 | 0.390 | | 0.406 |
| F | 6.30 | | 6.90 | 0.248 | | 0.272 |
| G | | 2.54 | | | 0.1 | |
| H | 28.0 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.39 | | | 0.133 | |
| L2 | 1.14 | | 1.70 | 0.045 | | 0.067 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| Φ | | 3.6 | | | 0.142 | |

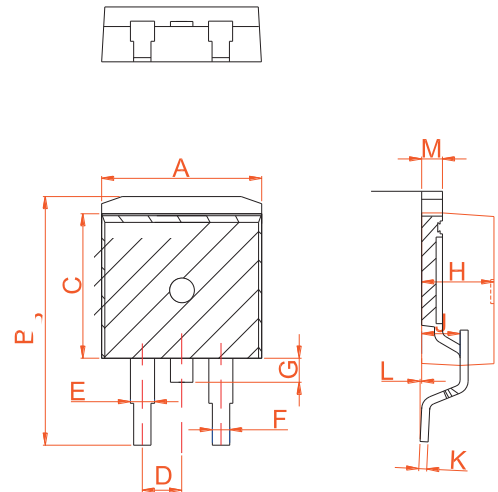
PACKAGE MECHANICAL DATA



TO-220F Ins

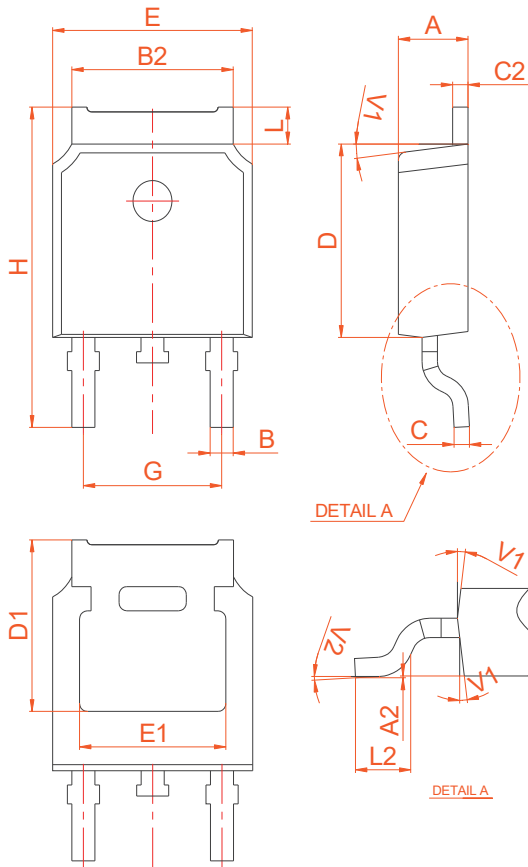
| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.50 | | 4.90 | 0.177 | | 0.193 |
| B | 0.74 | 0.80 | 0.83 | 0.029 | 0.031 | 0.033 |
| C | 0.47 | | 0.65 | 0.019 | | 0.026 |
| C2 | 2.45 | | 2.75 | 0.096 | | 0.108 |
| C3 | 2.60 | | 3.00 | 0.102 | | 0.118 |
| D | 8.80 | | 9.30 | 0.346 | | 0.366 |
| E | 9.80 | | 10.4 | 0.386 | | 0.410 |
| F | 6.40 | | 6.80 | 0.252 | | 0.268 |
| G | | 2.54 | | | 0.1 | |
| H | 28.0 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.63 | | | 0.143 | |
| L2 | 1.14 | | 1.70 | 0.045 | | 0.067 |
| L3 | | 3.30 | | | 0.130 | |
| V1 | | 45° | | | 45° | |

| Ref. | Dimensions | | | | | |
|------|-------------|------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 9.90 | | 10.20 | 0.390 | | 0.402 |
| B | 14.70 | | 15.80 | 0.579 | | 0.622 |
| C | 9.4 | | 9.6 | 0.37 | | 0.378 |
| D | | 2.54 | | | 0.100 | |
| E | 1.20 | | 1.40 | 0.047 | | 0.055 |
| F | 0.75 | | 0.85 | 0.029 | | 0.033 |
| G | | | 1.75 | | | 0.069 |
| H | 4.40 | | 4.70 | 0.173 | | 0.185 |
| J | 2.30 | | 2.70 | 0.091 | | 0.106 |
| K | 0.38 | | 0.55 | 0.015 | | 0.022 |
| L | 0 | 0.10 | 0.25 | 0 | 0.004 | 0.010 |
| M | 1.25 | | 1.35 | 0.049 | | 0.053 |



TO-263

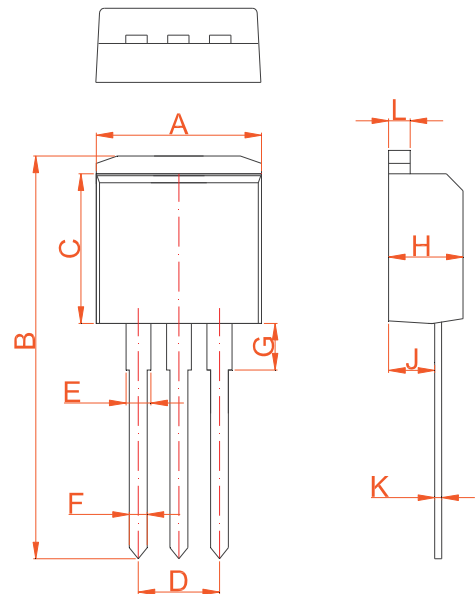
PACKAGE MECHANICAL DATA



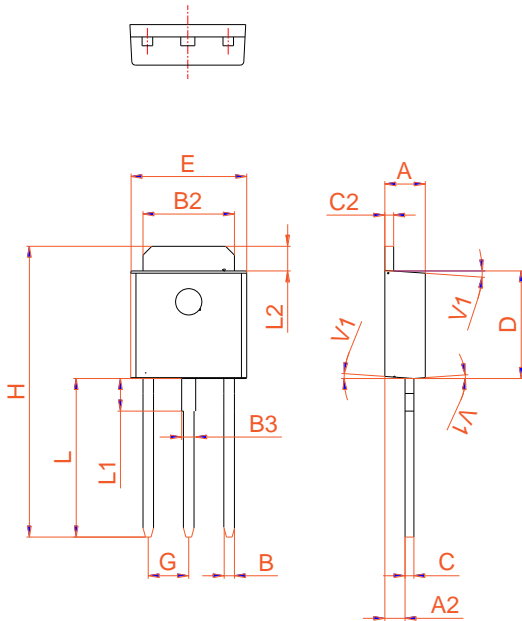
TO-252

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.20 | | 2.40 | 0.086 | | 0.095 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.55 | | 0.65 | 0.022 | | 0.026 |
| B2 | 5.10 | | 5.40 | 0.200 | | 0.213 |
| C | 0.45 | | 0.55 | 0.018 | | 0.022 |
| C2 | 2.70 | | 2.90 | 0.106 | | 0.114 |
| D | 6.00 | | 6.20 | 0.236 | | 0.244 |
| E | 6.40 | | 6.70 | 0.252 | | 0.264 |
| G | 4.40 | | 4.70 | 0.173 | | 0.185 |
| H | 9.35 | | 10.6 | 0.368 | | 0.417 |
| L1 | 1.30 | | 1.70 | 0.051 | | 0.067 |
| L2 | 1.37 | | 1.50 | 0.054 | | 0.059 |
| L3 | | 0.8 | | | 0.031 | |
| L4 | | 0.8 | | | 0.031 | |
| V1 | | 4° | | | 4° | |
| V2 | 0° | | 8° | 0° | | 8° |

| Ref. | Dimensions | | | | | |
|------|-------------|------|-------|--------|------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 9.95 | | 10.20 | 0.392 | | 0.402 |
| B | 23.25 | | 23.45 | 0.915 | | 0.923 |
| C | 8.90 | | 9.10 | 0.35 | | 0.358 |
| D | 2.50 | | 2.60 | 0.098 | | 0.102 |
| E | 1.20 | | 1.35 | 0.047 | | 0.053 |
| F | 0.80 | | 0.85 | 0.031 | | 0.033 |
| G | 3.30 | | 3.60 | 0.130 | | 0.142 |
| H | 4.45 | | 4.55 | 0.175 | | 0.179 |
| J | 2.50 | | 2.70 | 0.098 | | 0.106 |
| K | 0.38 | | 0.42 | 0.015 | | 0.017 |
| L | 1.25 | | 1.29 | 0.049 | | 0.051 |



TO-262



TO-251

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.20 | | 2.40 | 0.086 | | 0.095 |
| A2 | 0.90 | | 1.20 | 0.035 | | 0.047 |
| B | 0.55 | | 0.65 | 0.022 | | 0.026 |
| B2 | 5.10 | | 5.40 | 0.200 | | 0.213 |
| B3 | 0.76 | | 0.85 | 0.030 | | 0.033 |
| C | 0.45 | | 0.62 | 0.018 | | 0.024 |
| C2 | 0.48 | | 0.62 | 0.019 | | 0.024 |
| D | 6.00 | | 6.20 | 0.236 | | 0.244 |
| E | 6.40 | | 6.70 | 0.252 | | 0.264 |
| G | | 2.30 | | | 0.091 | |
| H | 16.0 | | 17.0 | 0.630 | | 0.669 |
| L | 8.90 | | 9.40 | 0.350 | | 0.370 |
| L1 | 1.80 | | 1.90 | 0.071 | | 0.075 |
| L2 | 1.37 | | 1.50 | 0.054 | | 0.059 |
| V1 | | 4° | | | 4° | |

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