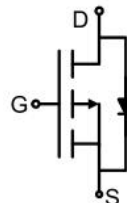
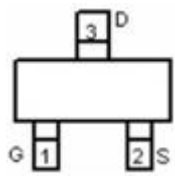
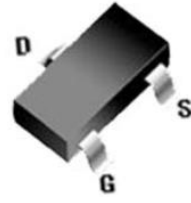


P-Channel Enhancement Mode Power MOSFET

| | | | |
|---|----------------|--|------------------|
| <p>Description</p> <p>The G3401 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.</p> <p>General Features</p> <ul style="list-style-type: none"> ● V_{DS} -30V ● I_D (at $V_{GS} = 10V$) -4.2A ● $R_{DS(ON)}$ (at $V_{GS} = -10V$) < 55mΩ ● $R_{DS(ON)}$ (at $V_{GS} = -4.5V$) < 69mΩ ● $R_{DS(ON)}$ (at $V_{GS} = -2.5V$) < 102mΩ ● 100% Avalanche Tested ● RoHS Compliant ● Surface mount package <p>Application</p> <ul style="list-style-type: none"> ● Power switch ● DC/DC converters | |  <p>Schematic diagram</p>  <p>Marking and pin assignment</p>  <p>SOT-23</p> | |
| Device | Package | Marking | Packaging |
| G3401 | SOT-23 | 3401 | 3000pcs/Reel |

| Absolute Maximum Ratings $T_C = 25^\circ C$, unless otherwise noted | | | |
|--|----------------|------------|------------|
| Parameter | Symbol | Value | Unit |
| Drain-Source Voltage | V_{DS} | -30 | V |
| Continuous Drain Current | I_D | -4.2 | A |
| Pulsed Drain Current (note1) | I_{DM} | -17 | A |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Power Dissipation | P_D | 1.2 | W |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 To 150 | $^\circ C$ |

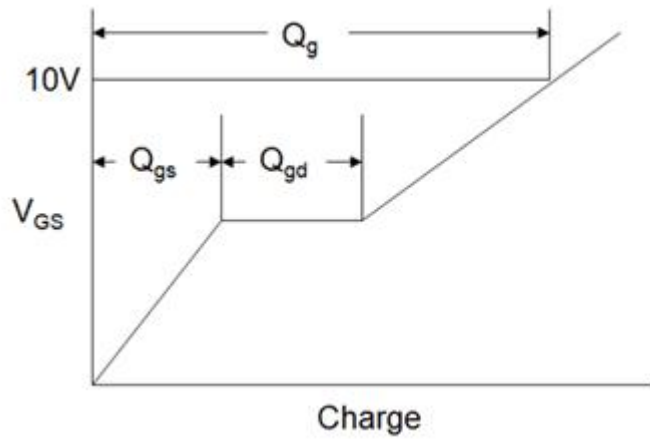
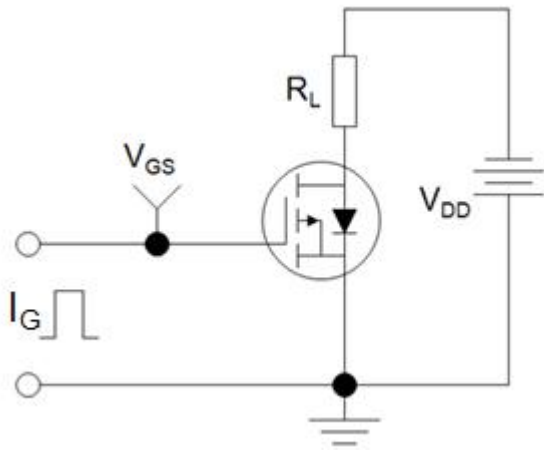
| Thermal Resistance | | | |
|---|------------|-------|--------------|
| Parameter | Symbol | Value | Unit |
| Thermal Resistance, Junction-to-Ambient | R_{thJA} | 104 | $^\circ C/W$ |

| Specifications $T_J = 25^\circ\text{C}$, unless otherwise noted | | | | | | |
|--|---------------|--|-------|------|-----------|------------|
| Parameter | Symbol | Test Conditions | Value | | | Unit |
| | | | Min. | Typ. | Max. | |
| Static Parameters | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250\mu A$ | -30 | -- | -- | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -30V, V_{GS} = 0V$ | -- | -- | -1.0 | μA |
| Gate-Source Leakage | I_{GSS} | $V_{GS} = \pm 12V$ | -- | -- | ± 100 | nA |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -0.6 | -0.8 | -1.3 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = -10V, I_D = -4A$ | -- | 43 | 55 | m Ω |
| | | $V_{GS} = -4.5V, I_D = -4A$ | -- | 50 | 69 | |
| | | $V_{GS} = -2.5V, I_D = -2A$ | -- | 65 | 102 | |
| Forward Transconductance | g_{FS} | $V_{DS} = -5V, I_D = -4.2A$ | -- | 10 | -- | S |
| Dynamic Parameters | | | | | | |
| Input Capacitance | C_{iss} | $V_{GS} = 0V,$ $V_{DS} = -15V,$ $f = 1.0MHz$ | -- | 880 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 105 | -- | |
| Reverse Transfer Capacitance | C_{rss} | | -- | 65 | -- | |
| Total Gate Charge | Q_g | $V_{DS} = -15V,$ $I_D = -4.2A,$ $V_{GS} = -4.5V$ | -- | 8.5 | -- | nC |
| Gate-Source Charge | Q_{gs} | | -- | 1.8 | -- | |
| Gate-Drain Charge | Q_{gd} | | -- | 2.7 | -- | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD} = -15V,$ $I_D = -4.2A,$ $R_G = 6\Omega$ | -- | 7 | -- | ns |
| Turn-on Rise Time | t_r | | -- | 3 | -- | |
| Turn-off Delay Time | $t_{d(off)}$ | | -- | 30 | -- | |
| Turn-off Fall Time | t_f | | -- | 12 | -- | |
| Drain-Source Body Diode Characteristics | | | | | | |
| Body Diode Voltage | V_{SD} | $T_J = 25^\circ\text{C}, I_{SD} = -1A, V_{GS} = 0V$ | -- | -- | -1.2 | V |

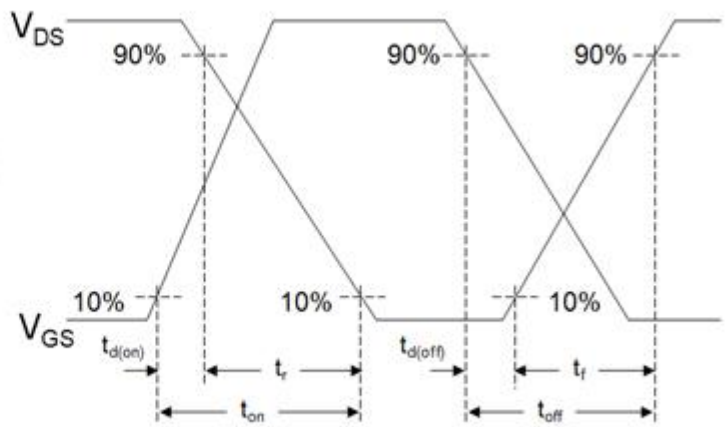
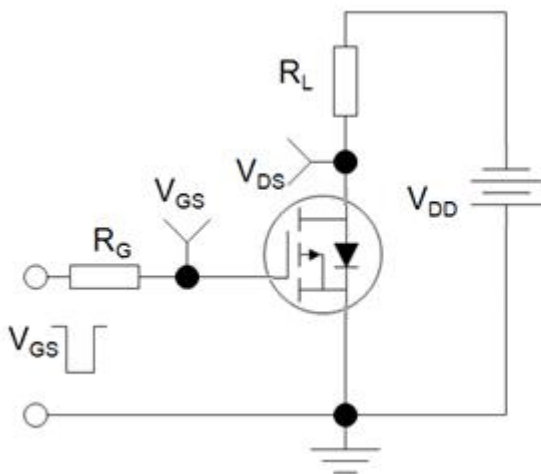
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Identical low side and high side switch with identical R_G

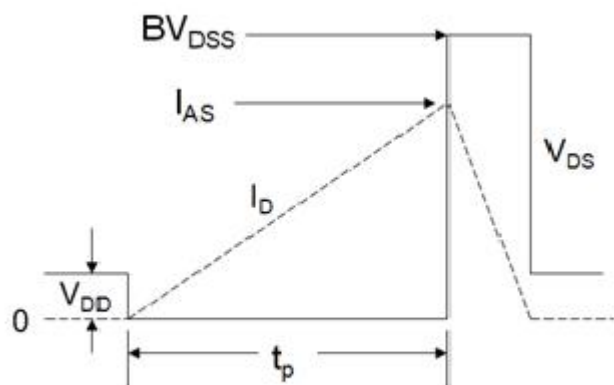
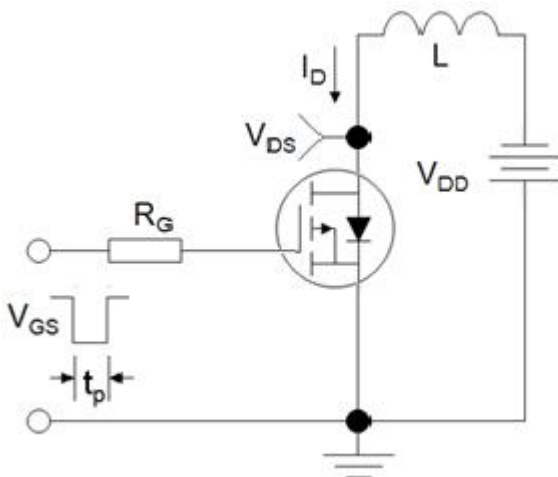
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

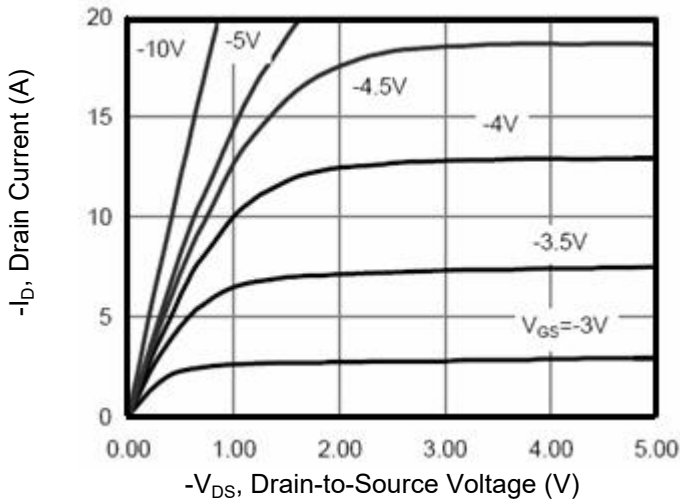


Figure 2. Transfer Characteristics

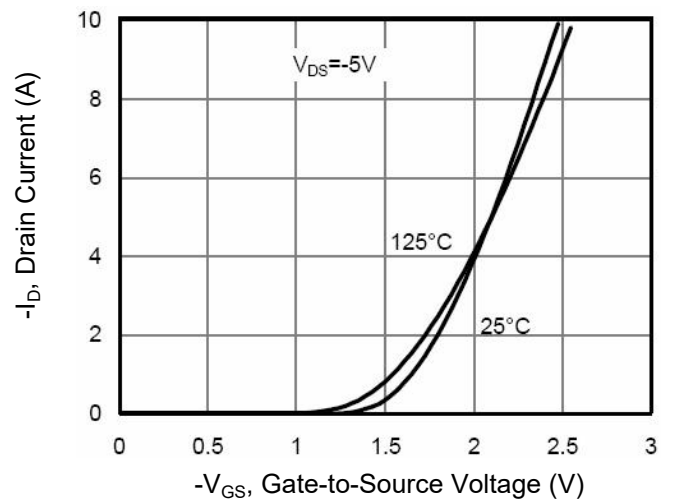


Figure 3. Gate Charge

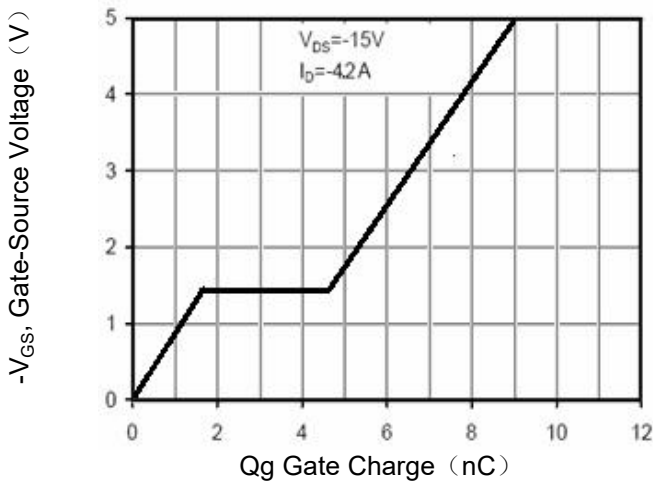


Figure 4. Drain-Source On-Resistance

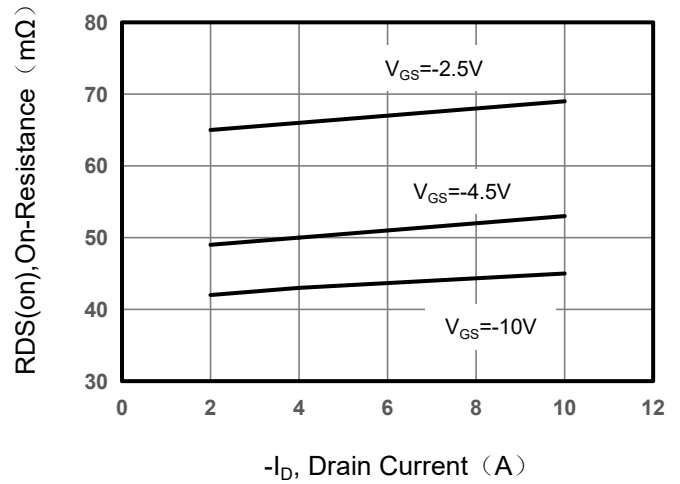


Figure 5. Capacitance

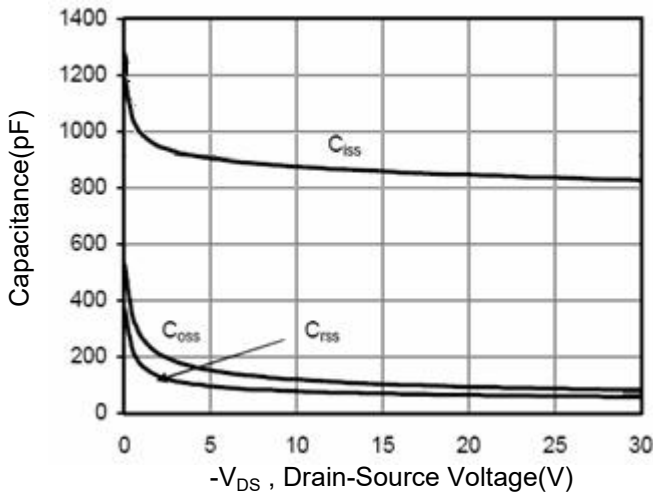
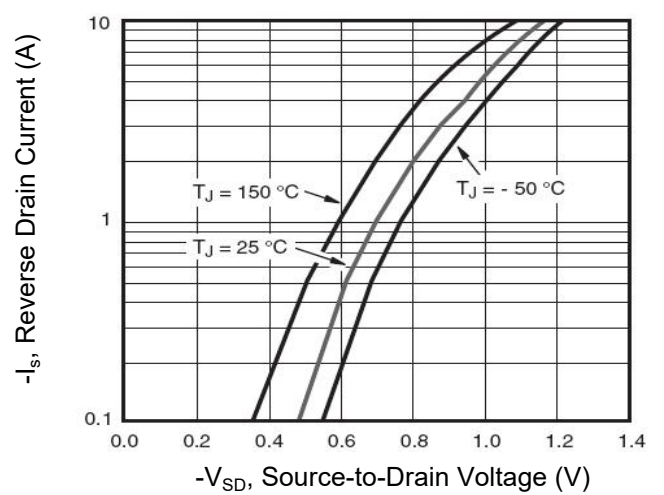


Figure 6. Source-Drain Diode Forward



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 7. Drain-Source On-Resistance

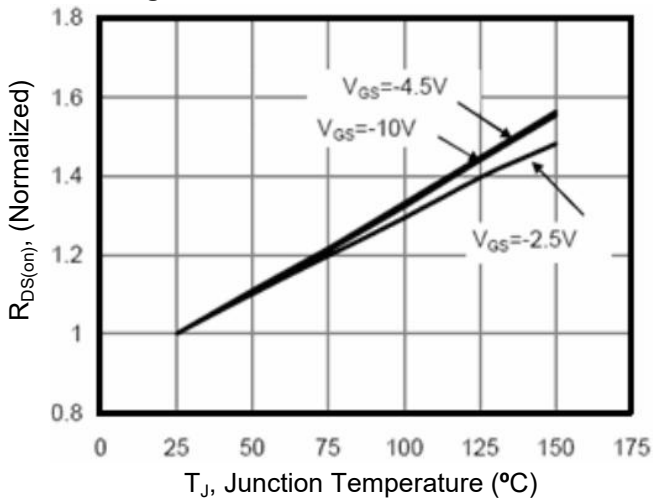


Figure 8. Safe Operation Area

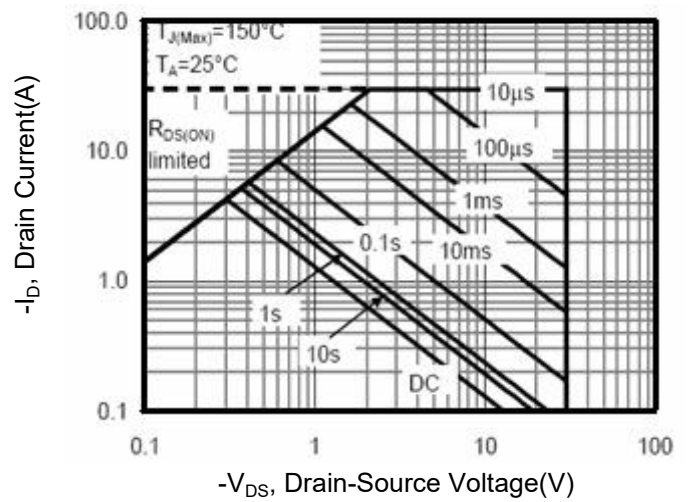
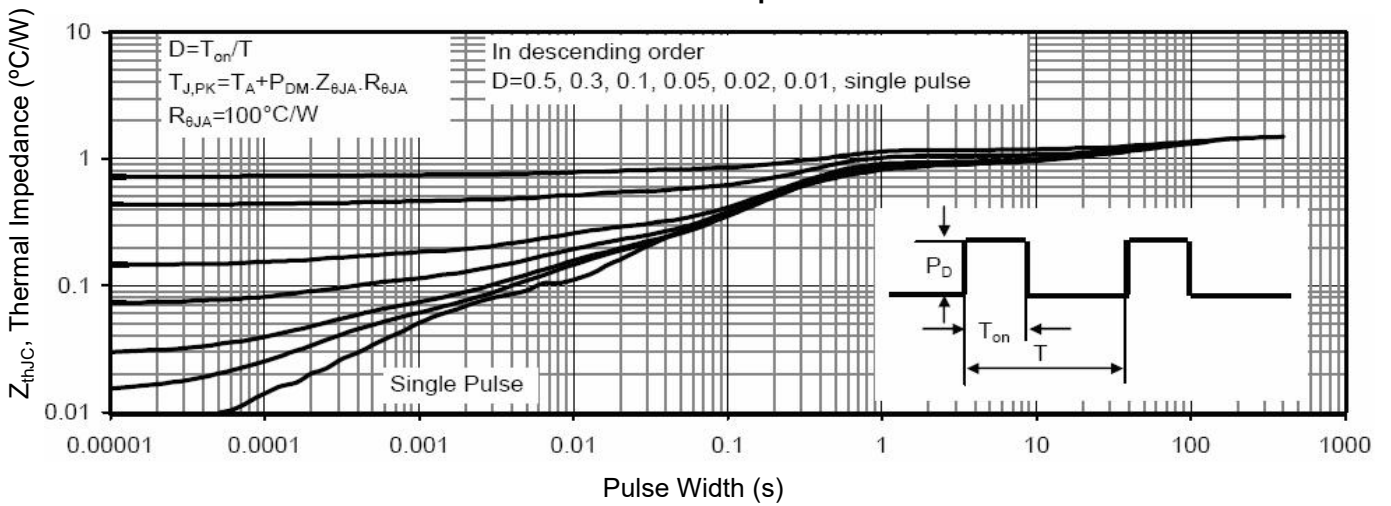
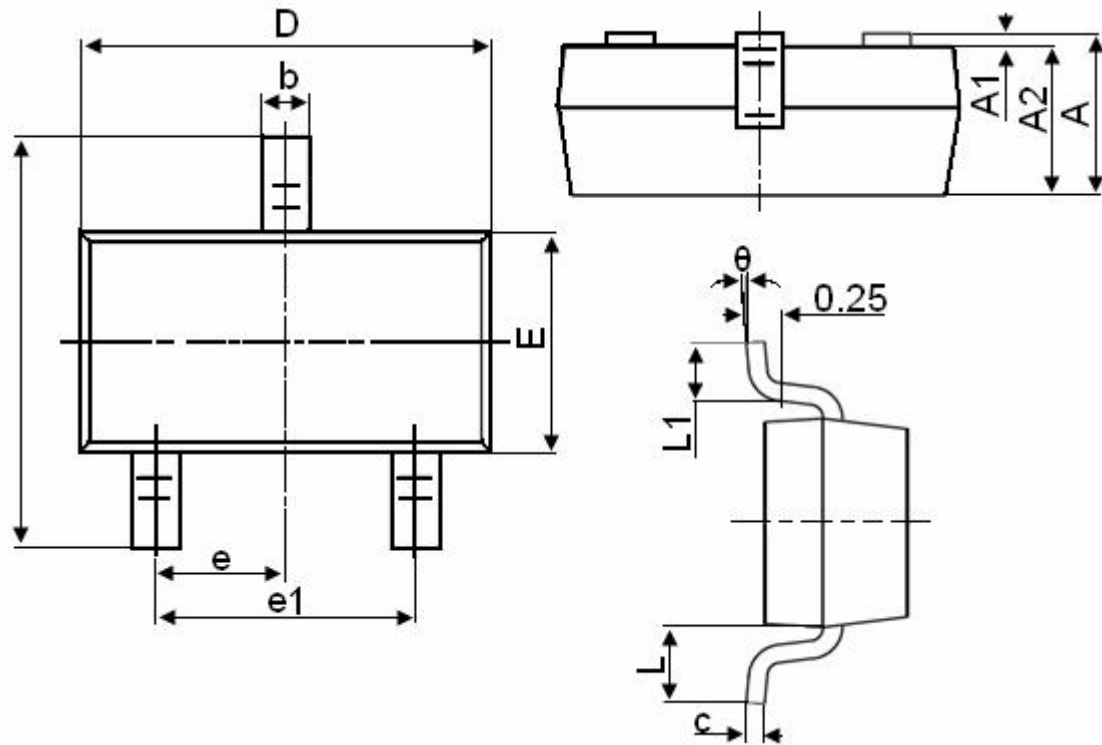


Figure 9. Normalized Maximum Transient Thermal Impedance



SOT-23 Package Information



| Symbol | Dimensions in Millimeters | |
|--------|---------------------------|-------|
| | MIN. | MAX. |
| A | 0.900 | 1.150 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.050 |
| b | 0.300 | 0.500 |
| c | 0.080 | 0.150 |
| D | 2.800 | 3.000 |
| E | 1.200 | 1.400 |
| E1 | 2.250 | 2.550 |
| e | 0.950TYP | |
| e1 | 1.800 | 2.000 |
| L | 0.550REF | |
| L1 | 0.300 | 0.500 |
| θ | 0° | 8° |

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