



SPN6338

Dual N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN6338 is the Dual N-Channel enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching , low in-line power loss, and resistance to transients are needed.

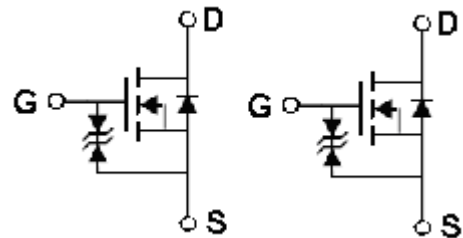
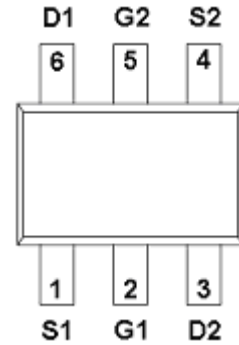
FEATURES

- ◆ N-Channel
30V/0.95A, $R_{DS(ON)}=550m\Omega@V_{GS}=4.5V$
30V/0.75A, $R_{DS(ON)}=650m\Omega@V_{GS}=2.5V$
30V/0.65A, $R_{DS(ON)}=850m\Omega@V_{GS}=1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-363 (SC-70-6L) package design

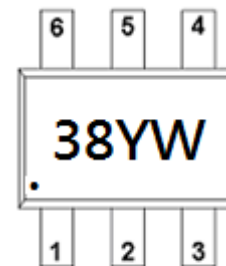
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION(SOT-363 / SC-70-6L)



PART MARKING



Y : Year Code
W : Week Code



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PIN DESCRIPTION

| Pin | Symbol | Description |
|-----|--------|-------------|
| 1 | S1 | Source 1 |
| 2 | G1 | Gate 1 |
| 3 | D2 | Drain 2 |
| 4 | S2 | Source 2 |
| 5 | G2 | Gate 2 |
| 6 | D1 | Drain1 |

ORDERING INFORMATION

| Part Number | Package | Part Marking |
|---------------|---------|--------------|
| SPN6338S36RGB | SOT-363 | 38YW |

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)

※ SPN6338S36RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

| Parameter | Symbol | Typical | Unit |
|---|--------|---------|------|
| Drain-Source Voltage | VDSS | 30 | V |
| Gate –Source Voltage | VGSS | ±12 | V |
| Continuous Drain Current(TJ=150°C) | ID | TA=25°C | 1.2 |
| | | TA=80°C | 0.9 |
| Pulsed Drain Current | IDM | 4 | A |
| Continuous Source Current(Diode Conduction) | IS | 0.6 | A |
| Power Dissipation | PD | TA=25°C | 0.35 |
| | | TA=70°C | 0.19 |
| Operating Junction Temperature | TJ | -55/150 | °C |
| Storage Temperature Range | TSTG | -55/150 | °C |



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ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

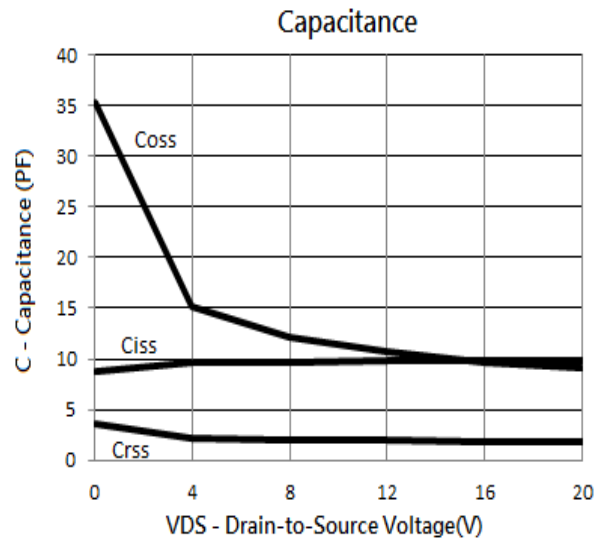
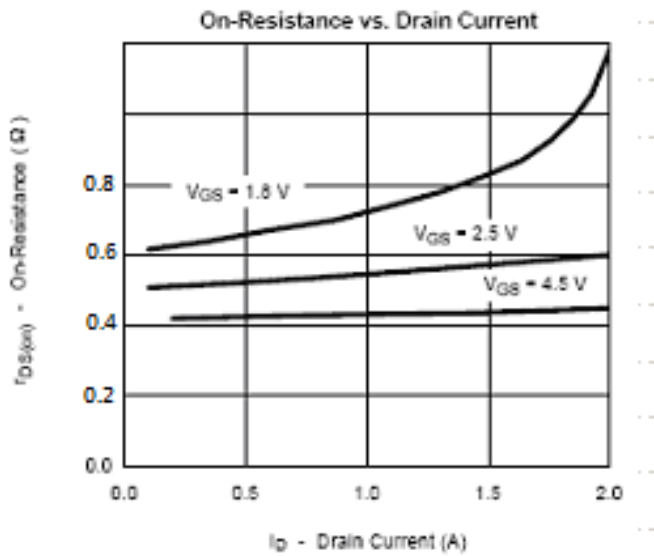
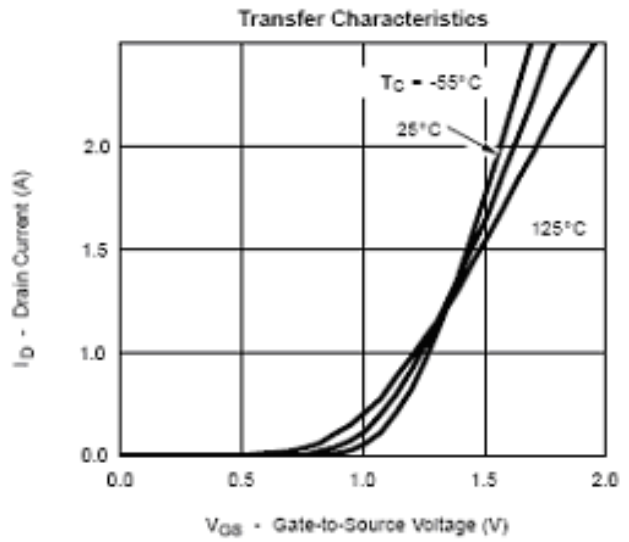
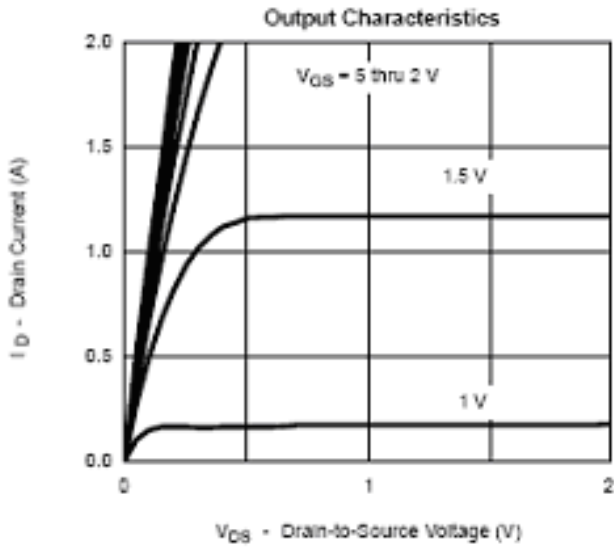
| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---------------------------------|---------------|--|------|------|------|----------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=250\mu A$ | 30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 0.35 | | 1.0 | |
| Gate Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 12V$ | | | 30 | μA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=24V, V_{GS}=0V$ | | | 1 | μA |
| | | $V_{DS}=24V, V_{GS}=0V$ $T_J=55^\circ C$ | | | 5 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS}\geq 4.5V, V_{GS}=5V$ | 0.7 | | | A |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=4.5V, I_D=0.95A$ | | 0.45 | 0.55 | Ω |
| | | $V_{GS}=2.5V, I_D=0.75A$ | | 0.50 | 0.65 | |
| | | $V_{GS}=1.8V, I_D=0.65A$ | | 0.70 | 0.85 | |
| Forward Transconductance | g_{fs} | $V_{DS}=10V, I_D=0.4A$ | | 1.0 | | S |
| Diode Forward Voltage | V_{SD} | $I_S=0.15A, V_{GS}=0V$ | | 0.8 | 1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=10V, V_{GS}=4.5V,$ $I_D=0.6A$ | | 1.2 | 1.5 | nC |
| Gate-Source Charge | Q_{gs} | | | 0.2 | | |
| Gate-Drain Charge | Q_{gd} | | | 0.3 | | |
| Input Capacitance | C_{iss} | $V_{DS}=10V, V_{GS}=0V$ $f=1MHz$ | | 7.2 | | pF |
| Output Capacitance | C_{oss} | | | 17 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 1.6 | | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}=10V, R_L=10\Omega,$ $I_D=0.5A$ $V_{GEN}=4.5V, R_G=6\Omega$ | | 5 | 10 | ns |
| | t_r | | | 8 | 15 | |
| Turn-Off Time | $t_{d(off)}$ | | | 10 | 18 | |
| | t_f | | | 1.2 | 2.8 | |



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TYPICAL CHARACTERISTICS

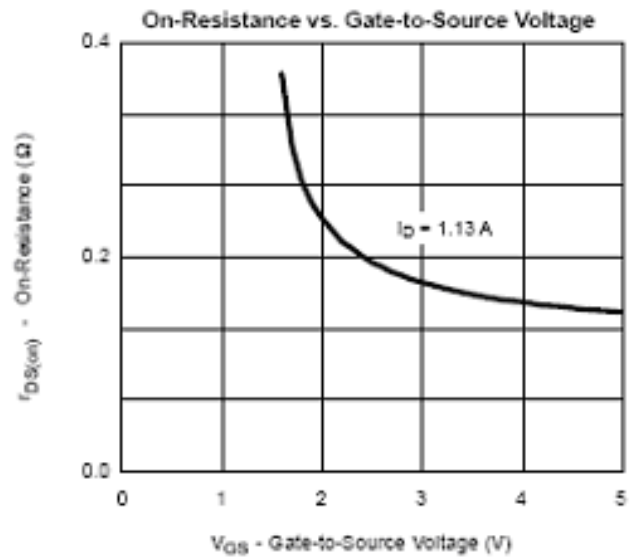
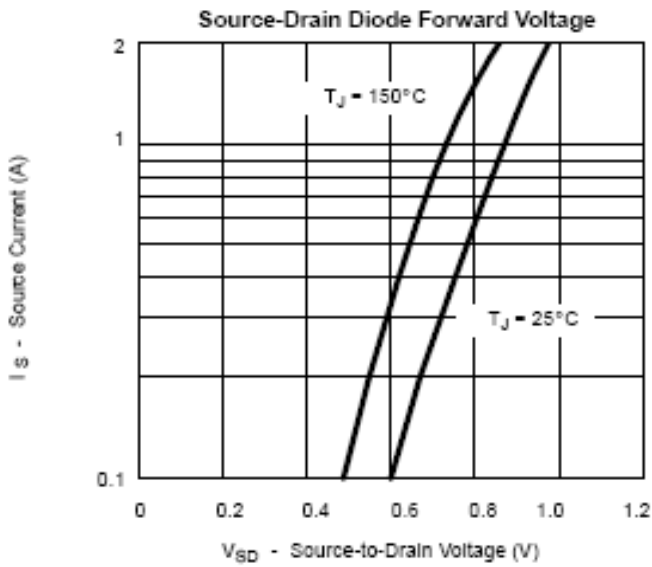
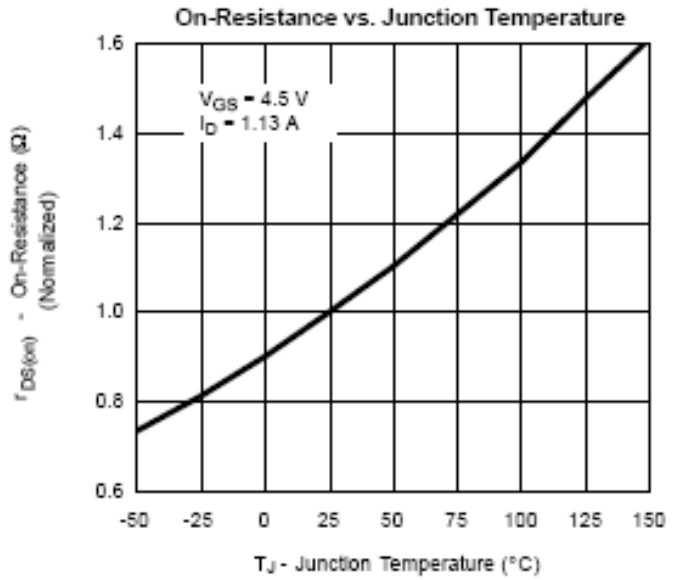
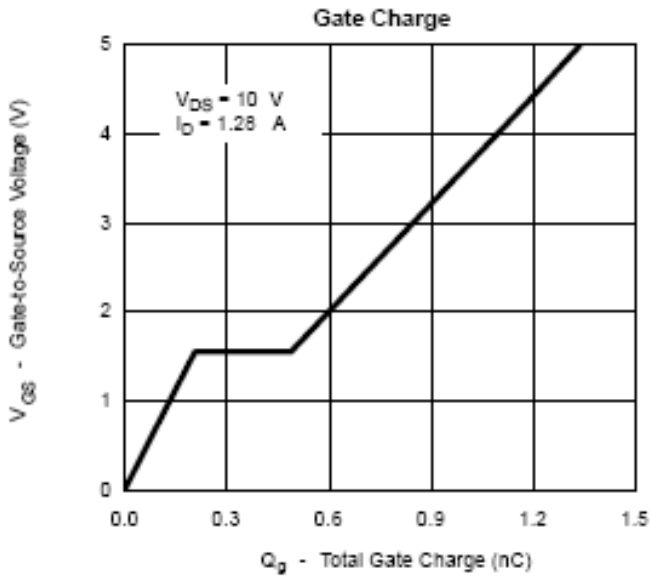




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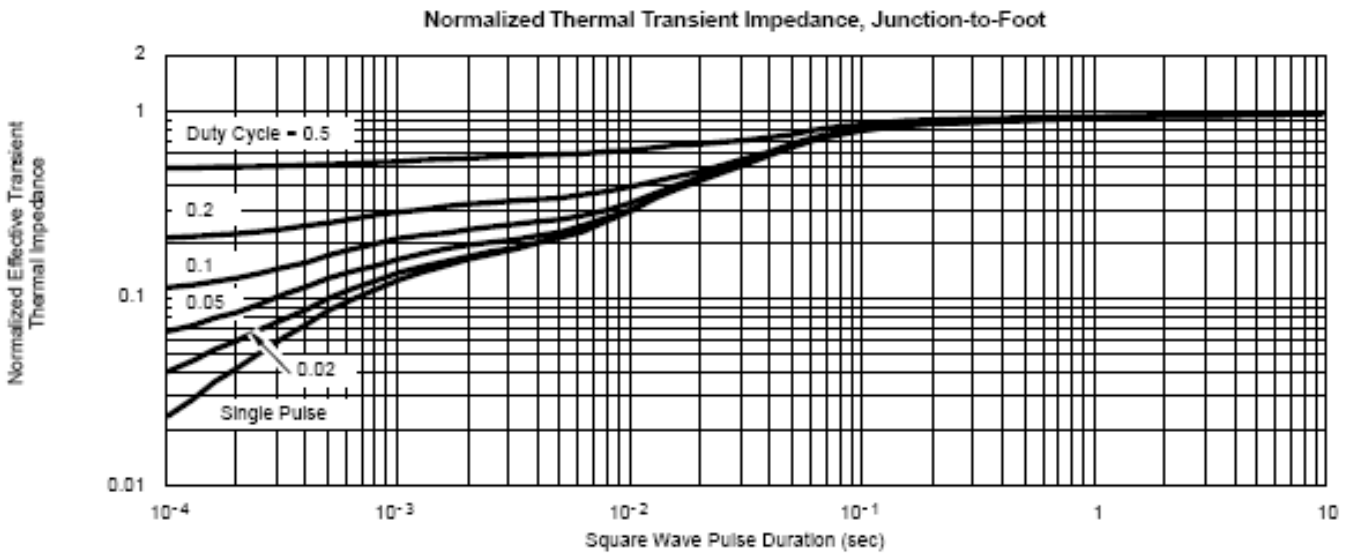
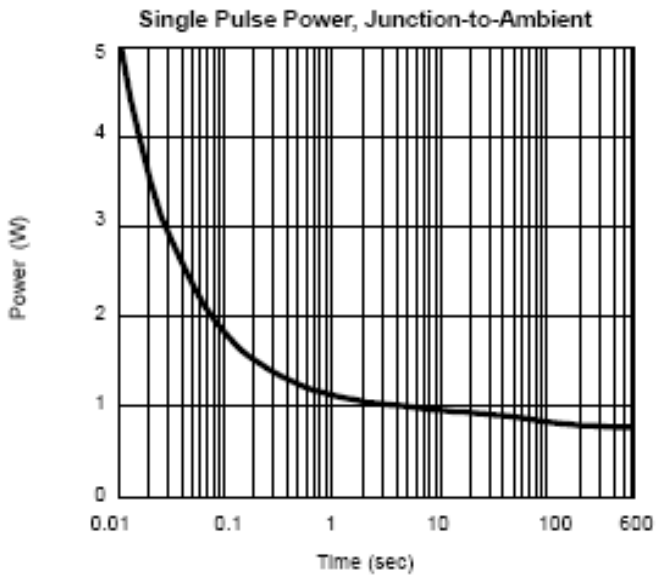
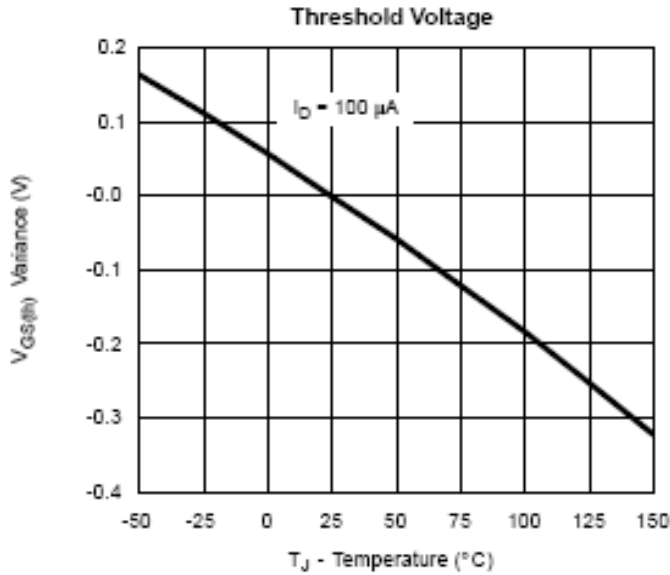




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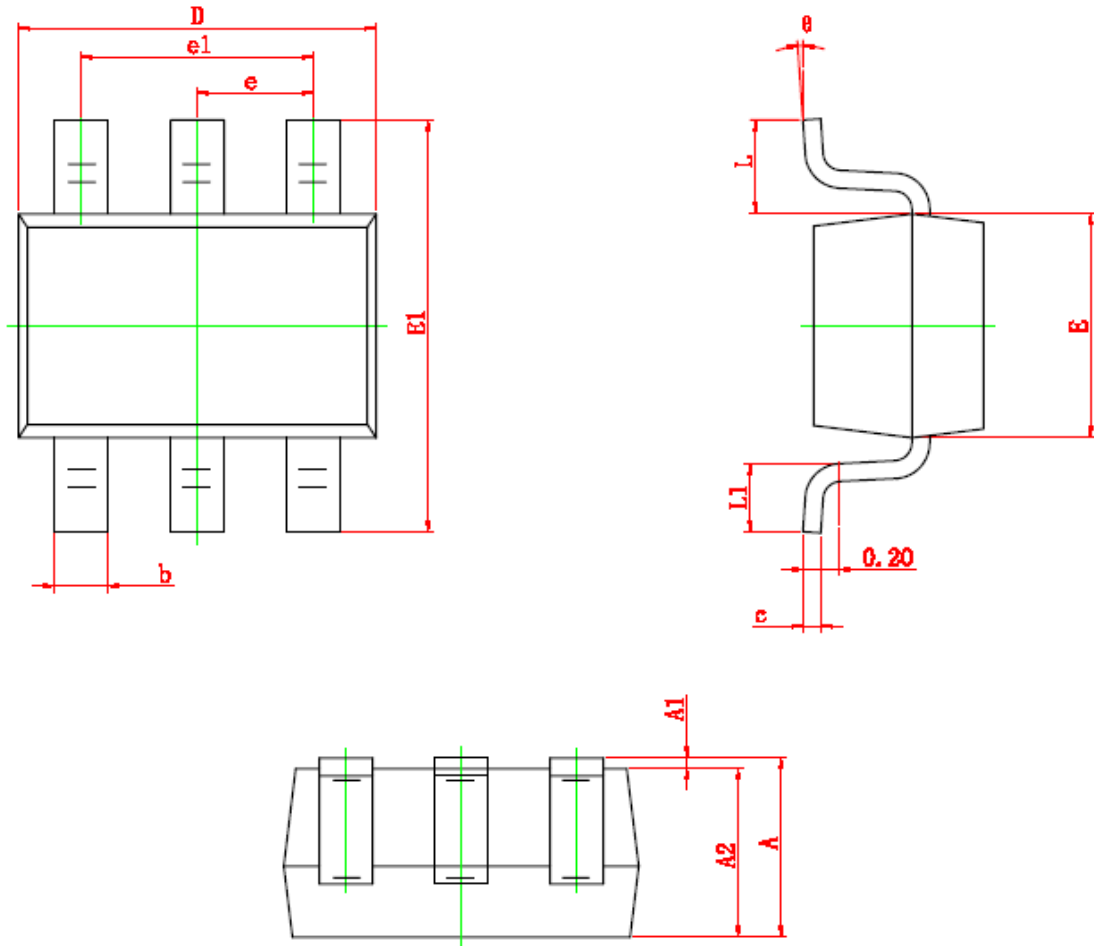




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SOT-363 PACKAGE OUTLINE



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.000 | 0.035 | 0.039 |
| b | 0.150 | 0.350 | 0.006 | 0.014 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.000 | 2.200 | 0.079 | 0.087 |
| E | 1.150 | 1.350 | 0.045 | 0.053 |
| E1 | 2.150 | 2.450 | 0.085 | 0.096 |
| e | 0.650 TYP | | 0.026 TYP | |
| e1 | 1.200 | 1.400 | 0.047 | 0.055 |
| L | 0.525 REF | | 0.021 REF | |
| L1 | 0.260 | 0.460 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |



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