# SPP4953
# P-Channel Enhancement Mode MOSFET

## DESCRIPTION

The SPP4953 is the Dual P-Channel logic 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.

These devices are particularly suited for low voltage application , notebook computer power management and other battery powered circuits where high-side switching .

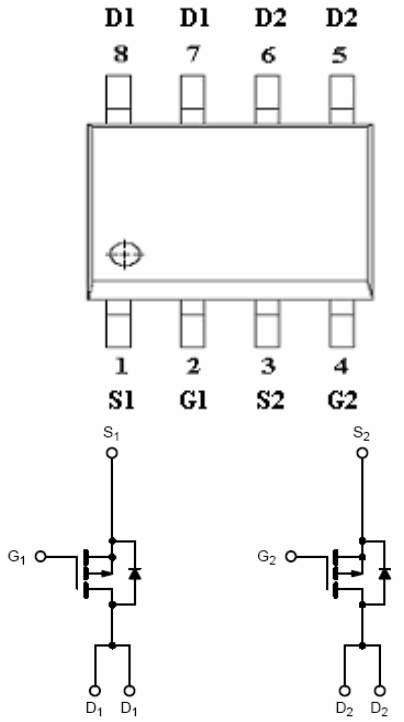
## APPLICATIONS

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

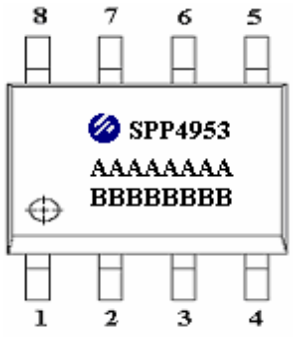
## FEATURES

- -30V/-5.0A,$R_{DS(ON)}$= 60mΩ@$V_{GS}$=- 10V
- -30V/-4.5A,$R_{DS(ON)}$= 80mΩ@$V_{GS}$=- 6V
- -30V/-3.7A,$R_{DS(ON)}$= 90mΩ@$V_{GS}$=-4.5V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- SOP – 8P package design

## PIN CONFIGURATION(SOP – 8P)




## PART MARKING




A : Lot Code
B : Date Code

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**PIN DESCRIPTION**

| Pin | Symbol | Description |
|---|---|---|
| 1 | S1 | Source 1 |
| 2 | G1 | Gate 1 |
| 3 | S2 | Source 2 |
| 4 | G2 | Gate 2 |
| 5 | D2 | Drain 2 |
| 6 | D2 | Drain 2 |
| 7 | D1 | Drain 1 |
| 8 | D1 | Drain 1 |

**ORDERING INFORMATION**

| Part Number | Package | Part Marking |
|---|---|---|
| SPP4953S8RG | SOP- 8P | SPP4953 |
| SPP4953S8TG | SOP- 8P | SPP4953 |

※ SPP4953S8RG : 13" Tape Reel ; Pb – Free
※ SPP4953S8TG : Tube ; Pb – Free

**ABSOULTE MAXIMUM RATINGS**

($T_A$=25℃ Unless otherwise noted)

| Parameter | | Symbol | Typical | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | -30 | V |
| Gate –Source Voltage | | $V_{GSS}$ | ±20 | V |
| Continuous Drain Current($T_J$=150℃) | $T_A$=25℃ | $I_D$ | -6.2 | A |
| | $T_A$=70℃ | | -4.0 | |
| Pulsed Drain Current | | $I_{DM}$ | -30 | A |
| Continuous Source Current(Diode Conduction) | | $I_S$ | -2.3 | A |
| Power Dissipation | $T_A$=25℃ | $P_D$ | 2.8 | W |
| | $T_A$=70℃ | | 1.8 | |
| Operating Junction Temperature | | $T_J$ | -55/150 | ℃ |
| Storage Temperature Range | | $T_{STG}$ | -55/150 | ℃ |
| Thermal Resistance-Junction to Ambient | | $R_{\theta JA}$ | 70 | ℃/W |

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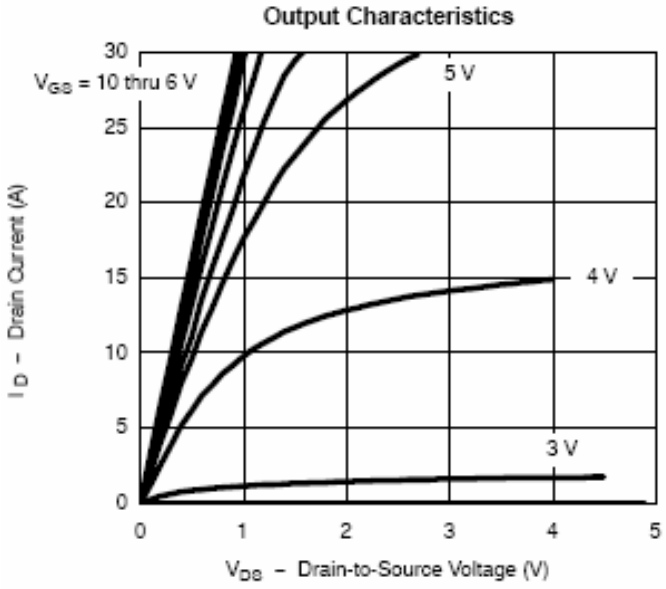
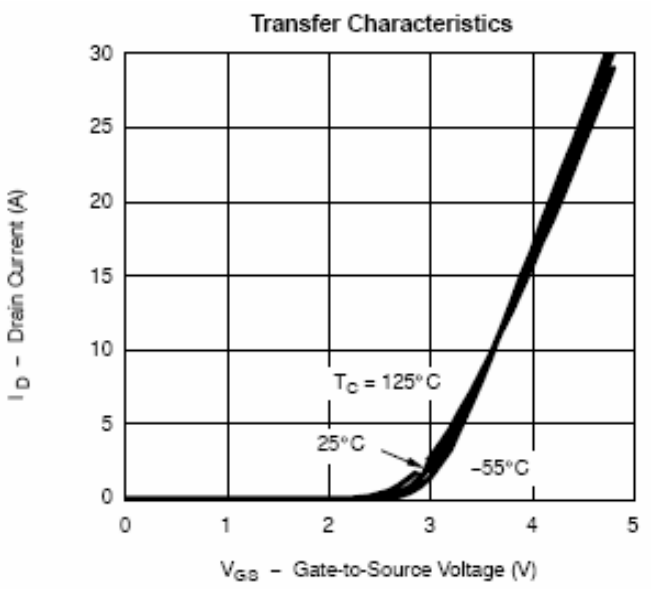
**ELECTRICAL CHARACTERISTICS**

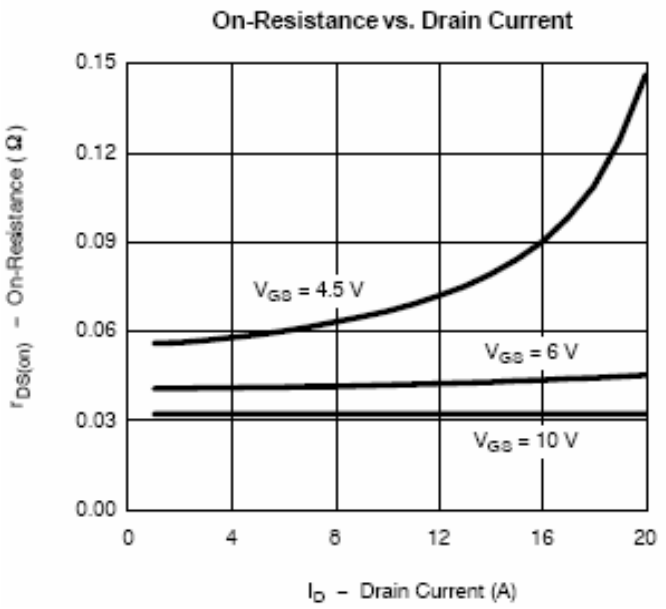
($T_A$=25℃ Unless otherwise noted)

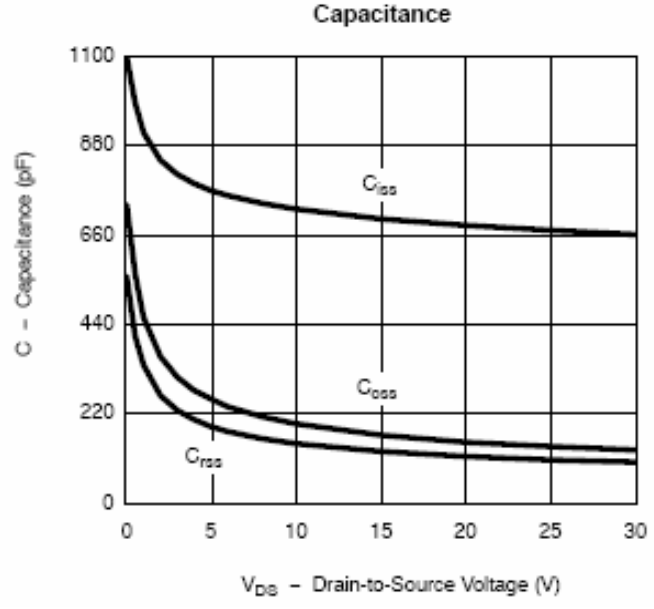
| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V,$I_D$=-250uA | -30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$,$I_D$=-250uA | -1.0 | | -3.0 | |
| Gate Leakage Current | $I_{GSS}$ | $V_{DS}$=0V,$V_{GS}$=±20V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-24V,$V_{GS}$=0V | | | -1 | uA |
| | | $V_{DS}$=-24V,$V_{GS}$=0V $T_J$=85℃ | | | -5 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS}$= -5V,$V_{GS}$ =-10V | -25 | | | A |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=-10V,$I_D$=-5.4A | | 0.050 | 0.060 | Ω |
| | | $V_{GS}$=-6.0V,$I_D$=-4.6A | | 0.060 | 0.080 | |
| | | $V_{GS}$=-4.5V,$I_D$=-4.0A | | 0.075 | 0.090 | |
| Forward Transconductance | gfs | $V_{DS}$=-10V,$I_D$=-5.0A | | 9 | | S |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=-2.0A,$V_{GS}$ =0V | | -0.8 | -1.2 | V |
| **Dynamic** | | | | | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=-15V,$V_{GS}$=-10V $I_D$= -5.0A | | 15 | 25 | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 4 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 2 | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=-15V,$V_{GS}$=0V f=1MHz | | 680 | | pF |
| Output Capacitance | $C_{oss}$ | | | 120 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 75 | | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}$=-15V,$R_L$=15Ω $I_D$≡-1.0A,$V_{GEN}$=-10V $R_G$=6Ω | | 7 | 15 | nS |
| | $t_r$ | | | 10 | 20 | |
| Turn-Off Time | $t_{d(off)}$ | | | 40 | 80 | |
| | $t_f$ | | | 20 | 40 | |

## TYPICAL CHARACTERISTICS



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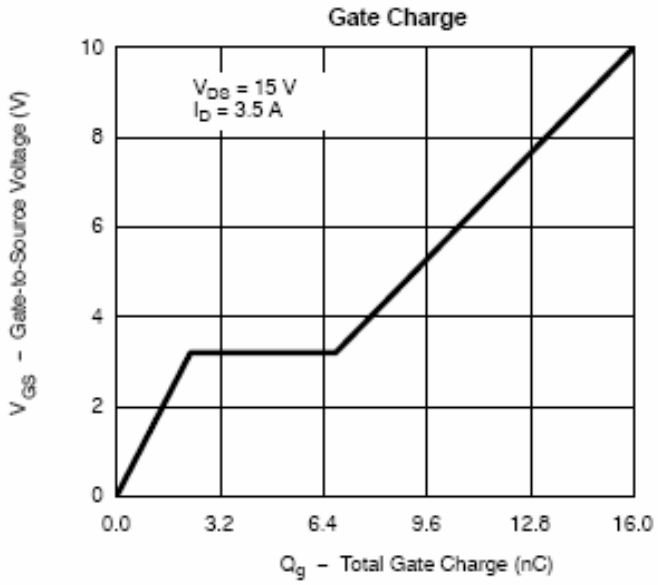


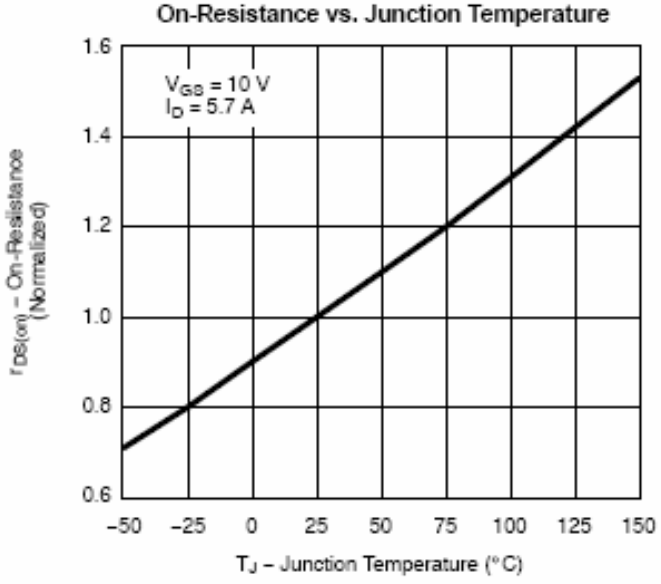


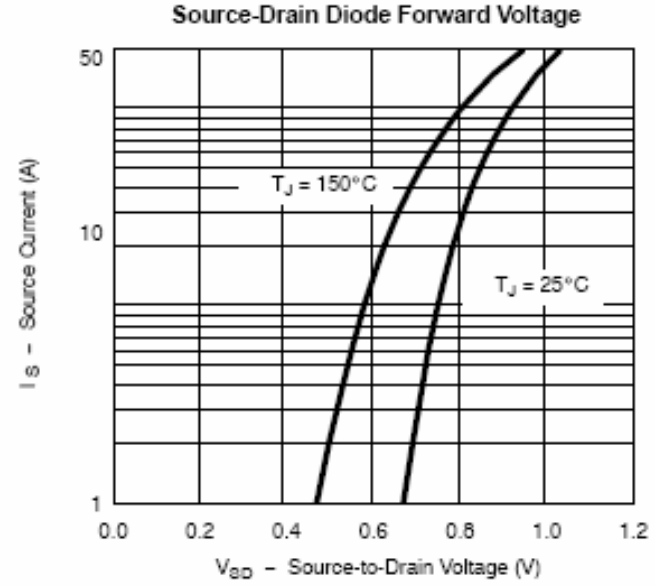


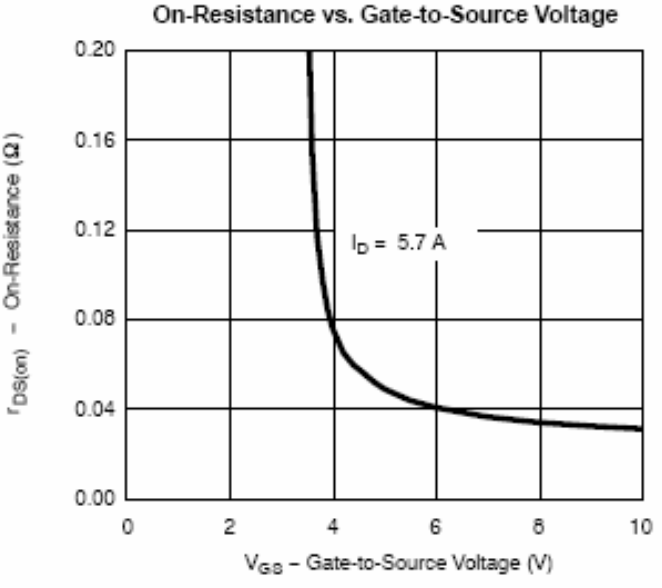

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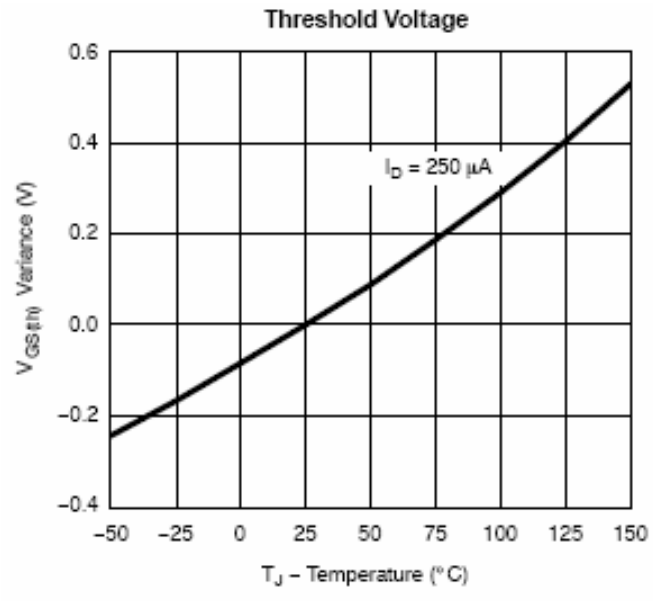
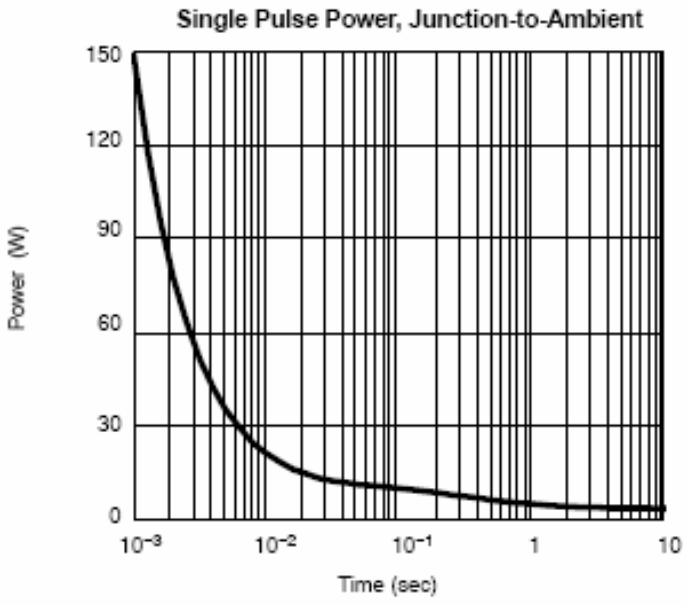
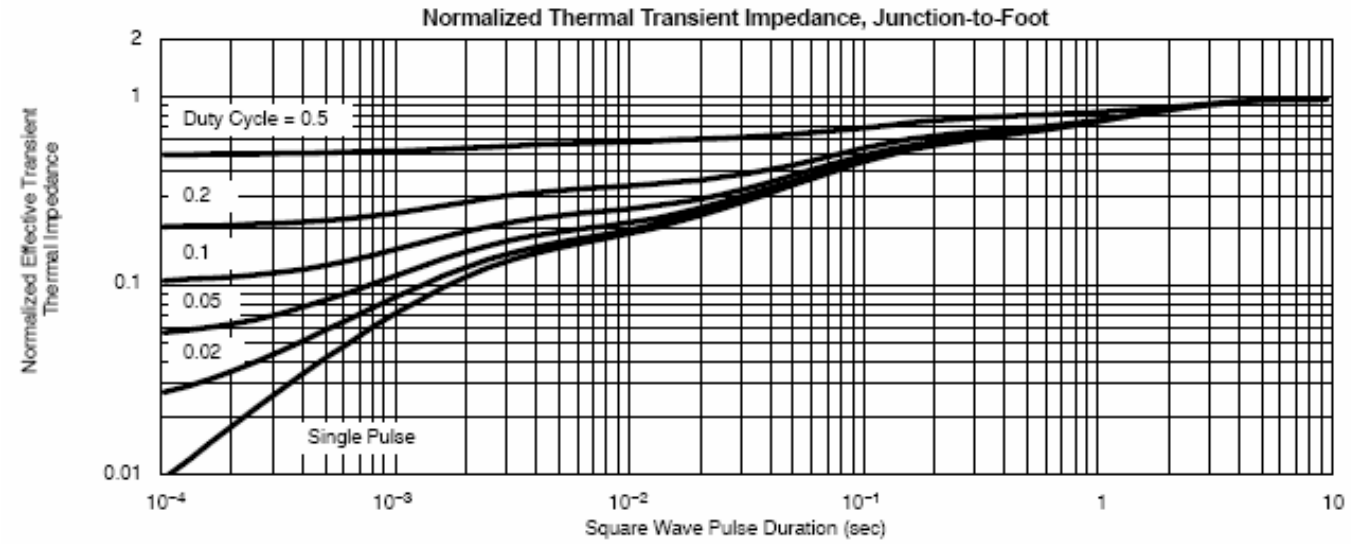
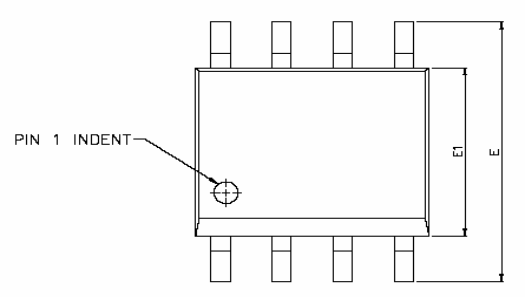
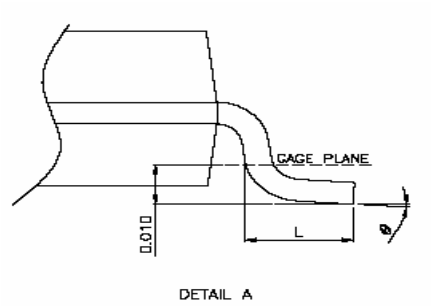


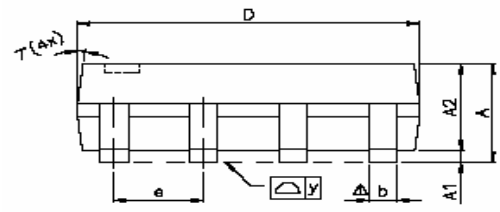



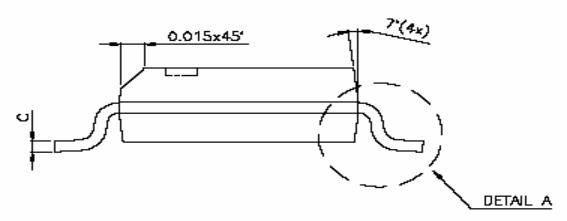



**SOP- 8 PACKAGE OUTLINE**




| SYMBOLS | DIMENSIONS IN MILLIMETERS | | | DIMENSIONS IN INCHES | | |
|---|---|---|---|---|---|---|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 1.47 | 1.60 | 1.73 | 0.058 | 0.063 | 0.068 |
| A1 | 0.10 | —— | 0.25 | 0.004 | —— | 0.010 |
| A2 | —— | 1.45 | —— | —— | 0.057 | —— |
| b | 0.33 | 0.41 | 0.51 | 0.013 | 0.016 | 0.020 |
| C | 0.19 | 0.20 | 0.25 | 0.0075 | 0.008 | 0.0098 |
| D | 4.80 | 4.85 | 4.95 | 0.189 | 0.191 | 0.195 |
| E | 5.80 | 6.00 | 6.20 | 0.228 | 0.236 | 0.244 |
| E1 | 3.80 | 3.90 | 4.00 | 0.150 | 0.154 | 0.157 |
| e | —— | 1.27 | —— | —— | 0.050 | —— |
| L | 0.38 | 0.71 | 1.27 | 0.015 | 0.028 | 0.050 |
| 2 y | —— | —— | 0.076 | —— | —— | 0.003 |
| θ | 0° | —— | 8° | 0° | —— | 8° |

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