



PD54003-01

RF POWER TRANSISTORS The *LdmoST* PLASTIC FAMILY

TARGET DATA

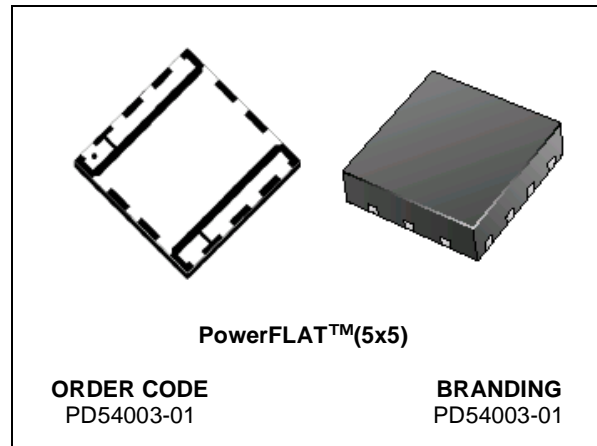
N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- $P_{OUT} = 3\text{ W}$ WITH 12 dB gain @ 500 MHz
- NEW LEADLESS PLASTIC PACKAGE

DESCRIPTION

The PD54003-01 is a common source N-Channel, enhancement-mode lateral Field-Effect RF power transistor. It is designed for high gain, broad band commercial and industrial applications. It operates at 7 V in common source mode at frequencies of up to 1 GHz. PD54003-01 boasts the excellent gain, linearity and reliability of ST's latest LDMOS technology mounted in the innovative leadless SMD plastic package, PowerFLAT™.

PD54003-01's superior linearity performance makes it an ideal solution for portable radio.



ABSOLUTE MAXIMUM RATINGS ($T_{CASE} = 25\text{ }^{\circ}\text{C}$)

| Symbol | Parameter | Value | Unit |
|---------------|---|-------------|--------------------|
| $V_{(BR)DSS}$ | Drain-Source Voltage | 25 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| I_D | Drain Current | 4 | A |
| P_{DISS} | Power Dissipation (@ $T_c = 70^{\circ}\text{C}$) | TBD | W |
| T_j | Max. Operating Junction Temperature | 150 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature | -65 to +150 | $^{\circ}\text{C}$ |

THERMAL DATA

| | | | |
|---------------|-----------------------------------|-----|-----------------------------|
| $R_{th(j-c)}$ | Junction -Case Thermal Resistance | TBD | $^{\circ}\text{C}/\text{W}$ |
|---------------|-----------------------------------|-----|-----------------------------|

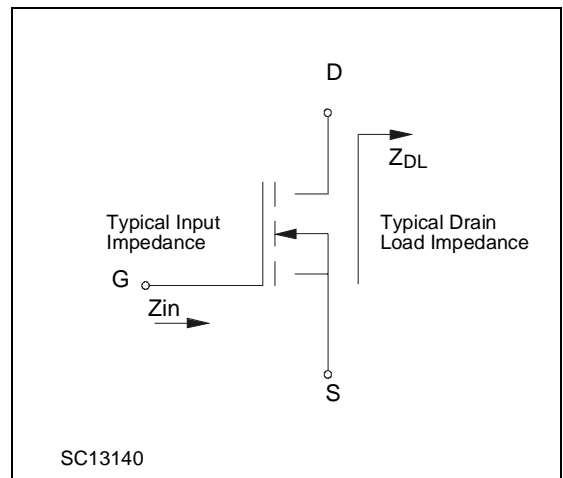
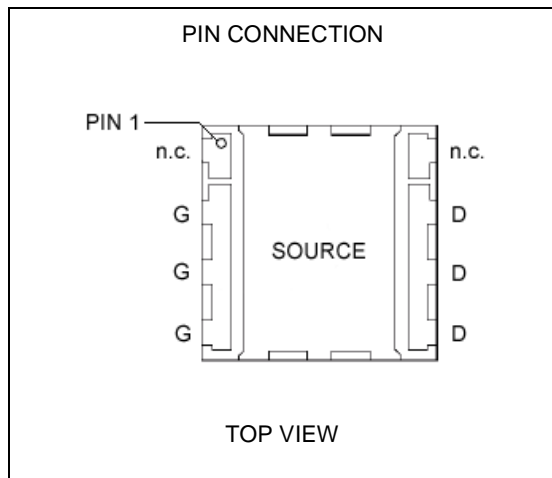
ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

STATIC (Per Section)

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|---------------------|------------------------|-------------------------|------|------|------|------|
| I _{DSS} | V _{GS} = 0 V | V _{DS} = 25 V | | | 1 | μA |
| I _{GSS} | V _{GS} = 20 V | V _{DS} = 0 V | | | 1 | μA |
| V _{GS(Q)} | V _{DS} = 10 V | I _D = 50 mA | 2.0 | | 5.0 | V |
| V _{DS(ON)} | V _{GS} = 10 V | I _D = 1 A | | | 1.3 | V |
| g _{FS} | V _{DS} = 10 V | I _D = 3.2 A | | 1.7 | | mho |
| C _{ISS} | V _{GS} = 0 V | V _{DS} = 7.5 V | | 59 | | pF |
| C _{OSS} | V _{GS} = 0 V | V _{DS} = 7.5 V | | 43 | | pF |
| C _{RSS} | V _{GS} = 0 V | V _{DS} = 7.5 V | | 4.0 | | pF |

DYNAMIC

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|------------------|-------------------------|-------------------------|------------------------|------|------|------|
| P _{OUT} | V _{DD} = 7.5 V | I _{DQ} = 50 mA | f = 500 MHz | 3 | | W |
| G _{PS} | V _{DD} = 7.5 V | I _{DQ} = 50 mA | P _{OUT} = 3 W | 10 | 12 | dB |
| η _D | V _{DD} = 7.5 V | I _{DQ} = 50 mA | P _{OUT} = 3 W | 50 | 55 | % |
| Load mismatch | V _{DD} = 9.5 V | I _{DQ} = 50 mA | P _{OUT} = 3 W | 20:1 | | VSWR |
| | ALL PHASE ANGLES | | | | | |

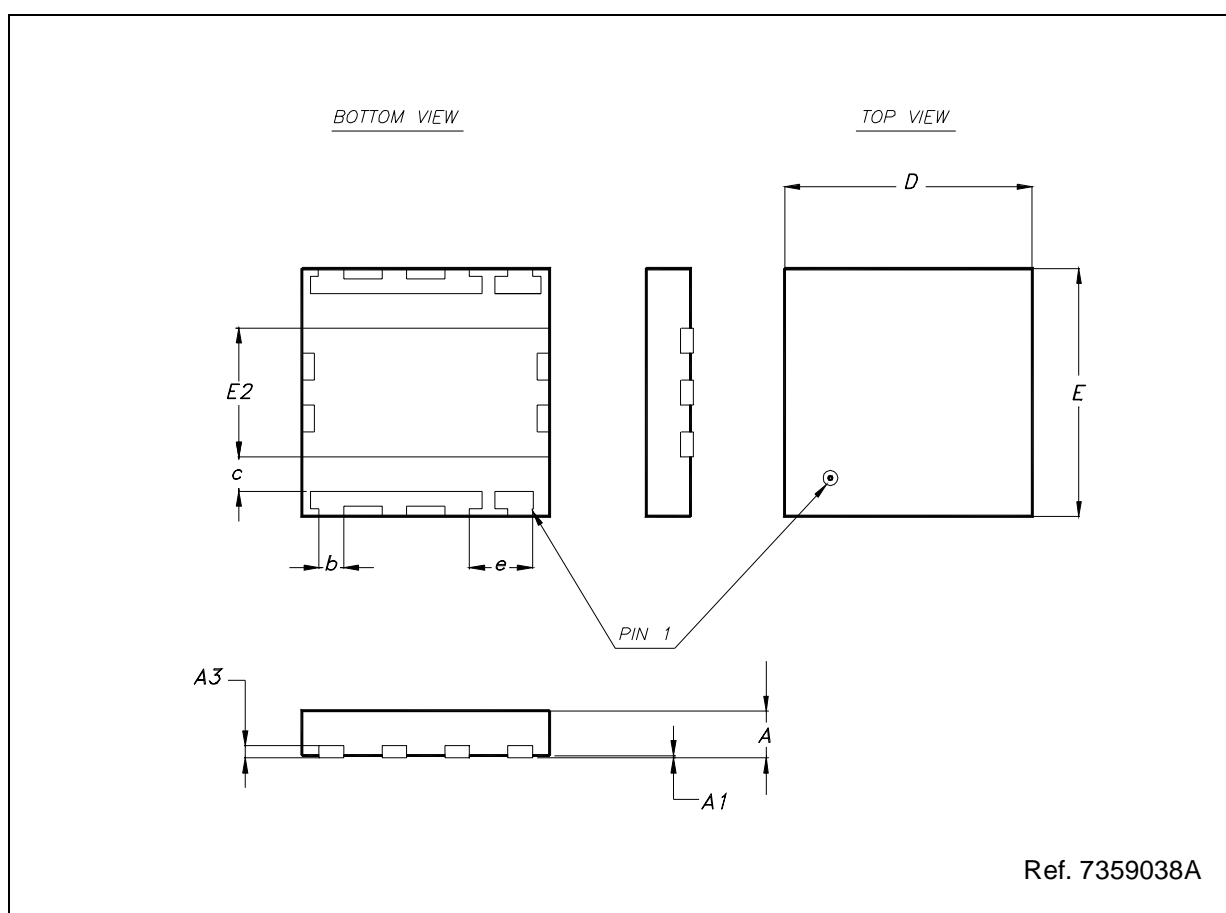


IMPEDANCE DATA

| FREQ. MHz | Z _{IN} (Ω) | Z _{DL} (Ω) |
|-----------|---------------------|---------------------|
| 480 | TBD | TBD |
| 500 | TBD | TBD |
| 520 | TBD | TBD |

PowerFLAT™ MECHANICAL DATA

| DIM. | mm | | | Inch | | |
|------|------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX | MIN. | TYP. | MAX |
| A | | 0.90 | 1.00 | | 0.035 | 0.039 |
| A1 | | 0.02 | 0.05 | | 0.001 | 0.002 |
| A3 | | 0.24 | | | 0.009 | |
| b | 0.43 | 0.51 | 0.58 | 0.017 | 0.020 | 0.023 |
| c | 0.64 | 0.71 | 0.79 | 0.025 | 0.028 | 0.031 |
| D | | 5.00 | | | 0.197 | |
| E | | 5.00 | | | 0.197 | |
| E2 | 2.49 | 2.57 | 2.64 | 0.098 | 0.101 | 0.104 |
| e | | 1.27 | | | 0.050 | |



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