



# PD55035 PD55035S

## RF POWER TRANSISTORS The LdmoST Plastic FAMILY

### N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- $P_{OUT} = 35\text{ W}$  with 16.9 dB gain @ 500 MHz / 12.5 V
- NEW RF PLASTIC PACKAGE

#### DESCRIPTION

The PD55035 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 12 V in common source mode at frequencies of up to 1 GHz. PD55035 boasts the excellent gain, linearity and reliability of ST's latest LDMOS technology mounted in the first true SMD plastic RF power package, PowerSO-10RF. PD55035's superior linearity performance makes it an ideal solution for car mobile radio.

The PowerSO-10 plastic package, designed to offer high reliability, is the first ST JEDEC approved, high power SMD package. It has been specially optimized for RF needs and offers excellent RF performances and ease of assembly.

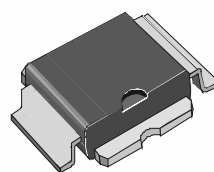
*Mounting recommendations are available in [www.st.com/rfl](http://www.st.com/rfl) (look for application note AN1294)*

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

| Symbol        | Parameter                                         | Value       | Unit               |
|---------------|---------------------------------------------------|-------------|--------------------|
| $V_{(BR)DSS}$ | Drain-Source Voltage                              | 40          | V                  |
| $V_{GS}$      | Gate-Source Voltage                               | $\pm 20$    | V                  |
| $I_D$         | Drain Current                                     | 7           | A                  |
| $P_{DISS}$    | Power Dissipation (@ $T_c = 70^{\circ}\text{C}$ ) | 95          | W                  |
| $T_j$         | Max. Operating Junction Temperature               | 165         | $^{\circ}\text{C}$ |
| $T_{STG}$     | Storage Temperature                               | -65 to +150 | $^{\circ}\text{C}$ |

#### THERMAL DATA

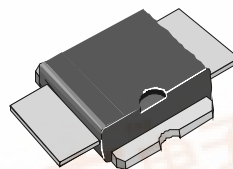
|               |                                   |     |                      |
|---------------|-----------------------------------|-----|----------------------|
| $R_{th(j-c)}$ | Junction -Case Thermal Resistance | 1.0 | $^{\circ}\text{C/W}$ |
|---------------|-----------------------------------|-----|----------------------|



PowerSO-10RF  
(formed lead)

ORDER CODE  
PD55035

BRANDING  
PD55035



PowerSO-10RF  
(straight lead)

ORDER CODE  
PD55035S

BRANDING  
PD55035S

PD55035 - PD55035S

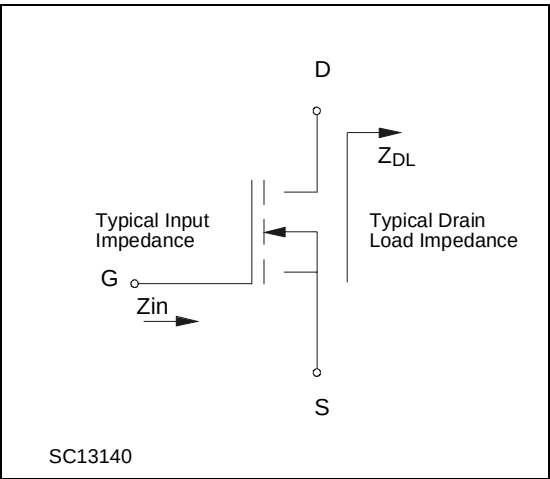
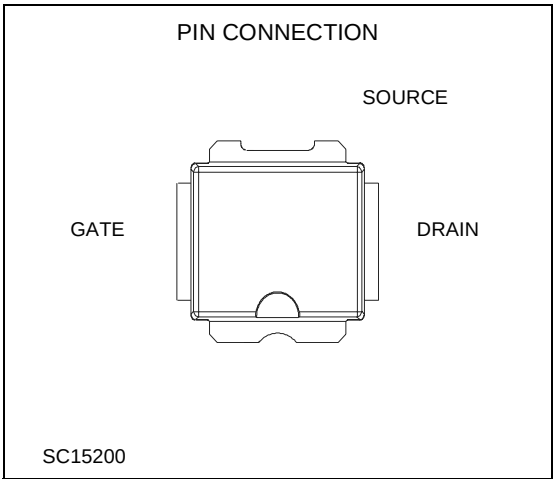
ELECTRICAL SPECIFICATION (T<sub>CASE</sub> = 25 °C)

STATIC

| Symbol              | Test Conditions        |                          | Min.      | Typ. | Max. | Unit |
|---------------------|------------------------|--------------------------|-----------|------|------|------|
| I <sub>DSS</sub>    | V <sub>GS</sub> = 0 V  | V <sub>DS</sub> = 28 V   |           |      | 1    | μA   |
| I <sub>GSS</sub>    | V <sub>GS</sub> = 20 V | V <sub>DS</sub> = 0 V    |           |      | 1    | μA   |
| V <sub>GS(Q)</sub>  | V <sub>DS</sub> = 28 V | I <sub>D</sub> = 100 mA  | 2.0       |      | 5.0  | V    |
| V <sub>DS(ON)</sub> | V <sub>GS</sub> = 10 V | I <sub>D</sub> = 3 A     |           | 0.8  | 0.95 | V    |
| G <sub>FS</sub>     | V <sub>DS</sub> = 10 V | I <sub>D</sub> = 3 A     | 2.5       |      |      | mho  |
| C <sub>ISS</sub>    | V <sub>GS</sub> = 0 V  | V <sub>DS</sub> = 12.5 V | f = 1 MHz |      | 92   | pF   |
| C <sub>OSS</sub>    | V <sub>GS</sub> = 0 V  | V <sub>DS</sub> = 12.5 V | f = 1 MHz |      | 73   | pF   |
| C <sub>RSS</sub>    | V <sub>GS</sub> = 0 V  | V <sub>DS</sub> = 12.5 V | f = 1 MHz |      | 6.1  | pF   |

DYNAMIC

| Symbol           | Test Conditions          |                                                                                        | Min. | Typ. | Max. | Unit |
|------------------|--------------------------|----------------------------------------------------------------------------------------|------|------|------|------|
| P <sub>out</sub> | V <sub>DD</sub> = 12.5 V | I <sub>DQ</sub> = 200 mA      f = 500 MHz                                              | 35   |      |      | W    |
| G <sub>P</sub>   | V <sub>DD</sub> = 12.5 V | I <sub>DQ</sub> = 200 mA    P <sub>OUT</sub> = 35 W    f = 500 MHz                     | 13   | 16.9 |      | dB   |
| η <sub>D</sub>   | V <sub>DD</sub> = 12.5 V | I <sub>DQ</sub> = 200 mA    P <sub>OUT</sub> = 35 W    f = 500 MHz                     |      | 62   |      | %    |
| Load mismatch    | V <sub>DD</sub> = 12.5 V | I <sub>DQ</sub> = 200 mA    P <sub>OUT</sub> = 35 W    f = 500 MHz<br>ALL PHASE ANGLES | 20:1 |      |      | VSWR |



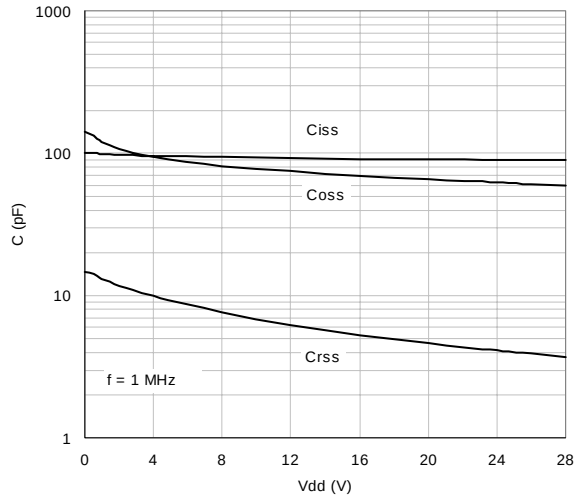
IMPEDANCE DATA

PD55035S

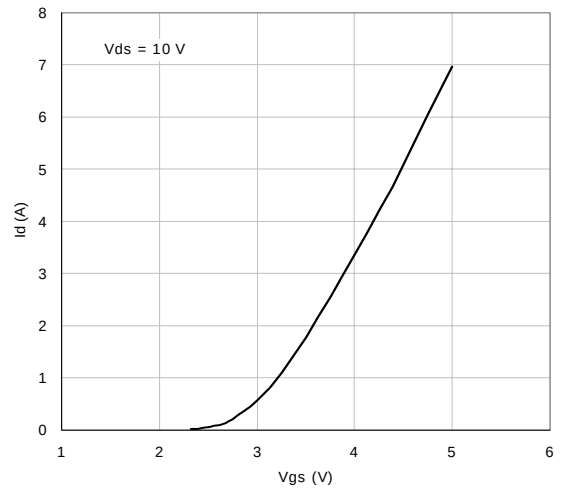
| FREQ. MHz | Z <sub>IN</sub> (Ω) | Z <sub>DL</sub> (Ω) |
|-----------|---------------------|---------------------|
| 175       | 3.34 - j 5.84       | 1.67 + j 1.45       |
| 480       | 0.53 - j 1.08       | 0.86 + j 0.25       |
| 500       | 0.45 - j 1.21       | 1.05 + j 0.03       |
| 520       | 0.42 - j 1.20       | 1.04 + j 0.15       |

## TYPICAL PERFORMANCE (PD55035S)

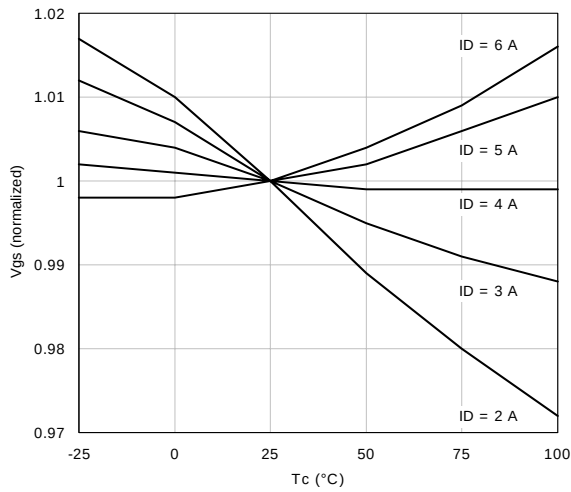
Capacitance vs. Supply Voltage



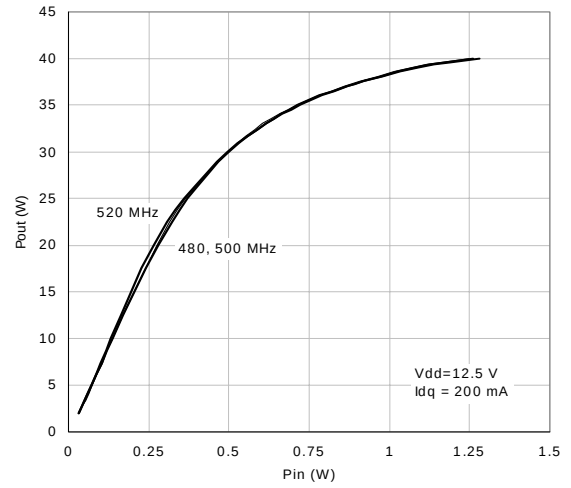
Drain Current vs. Gate-Source Voltage



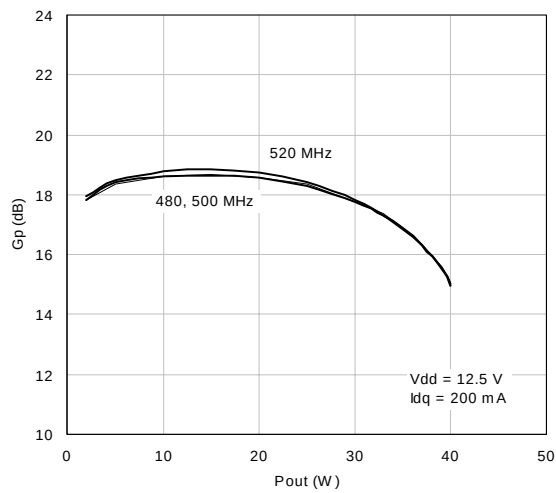
Gate-Source Voltage vs. Case Temperature



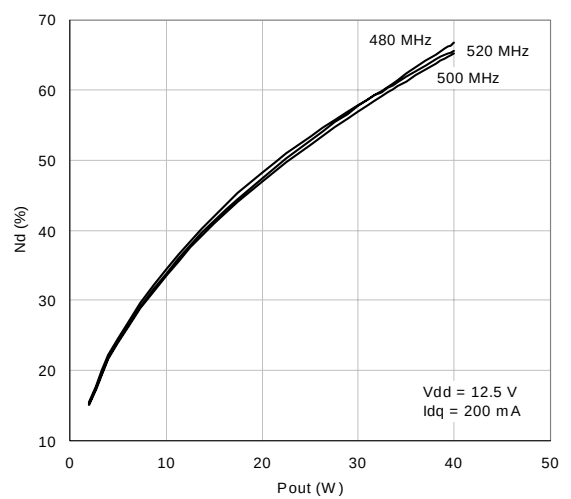
Output Power vs. Input Power



Power Gain vs. Output Power



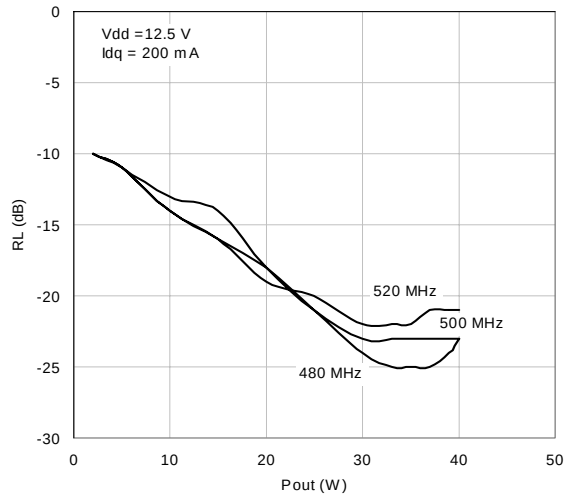
Efficiency vs. Output Power



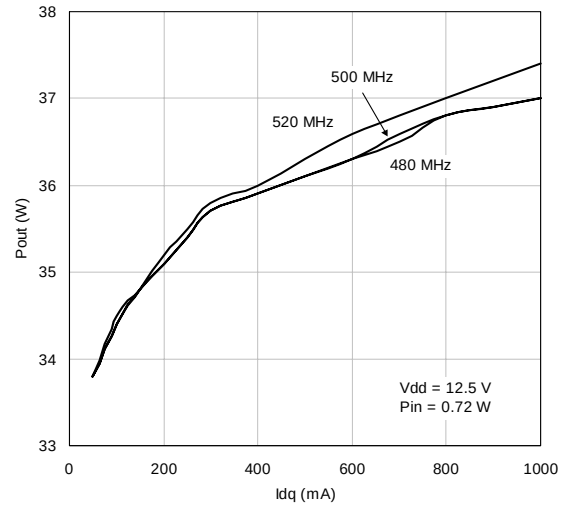
## PD55035 - PD55035S

### TYPICAL PERFORMANCE (PD55035S)

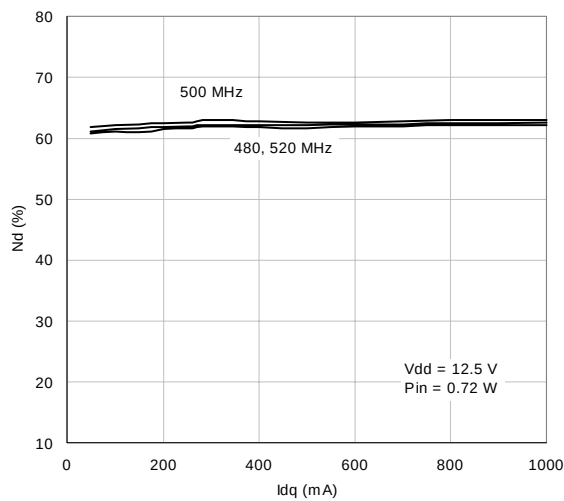
Input Return Loss vs. Output Power



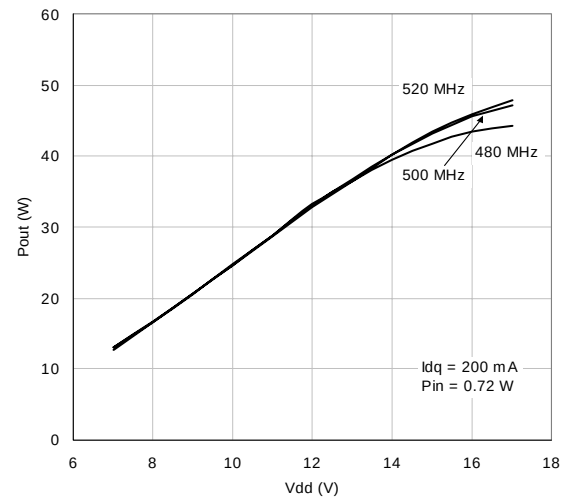
Output Power vs. Bias Current



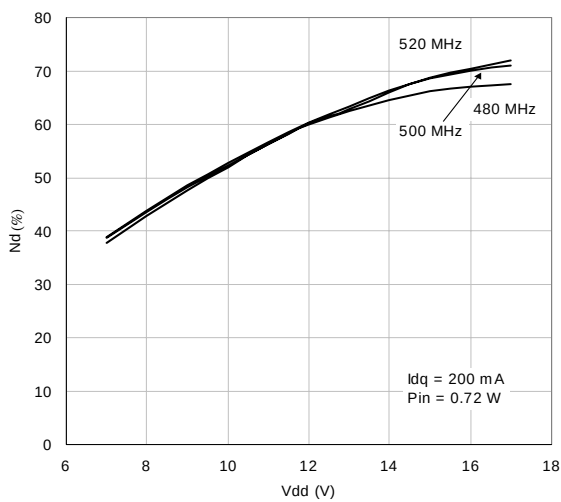
Efficiency vs. Bias Current



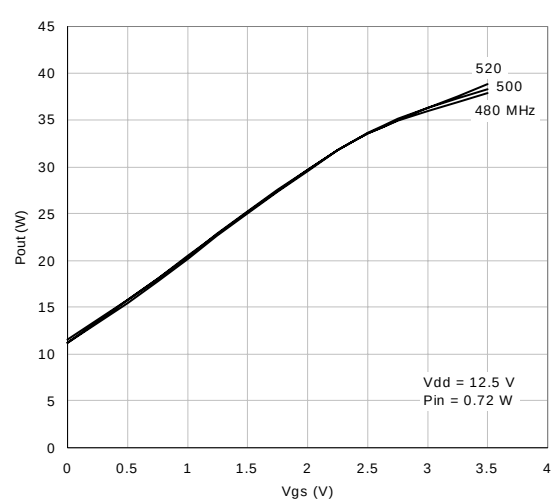
Output Power vs. Supply Voltage



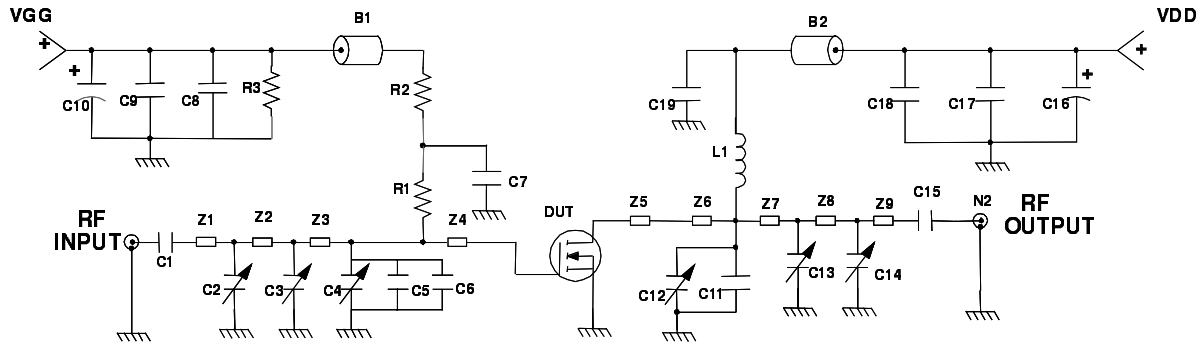
Efficiency vs. Supply Voltage



Output Power vs. Gate Voltage



## 500 MHz TEST CIRCUIT SCHEMATIC (ENGINEERING)



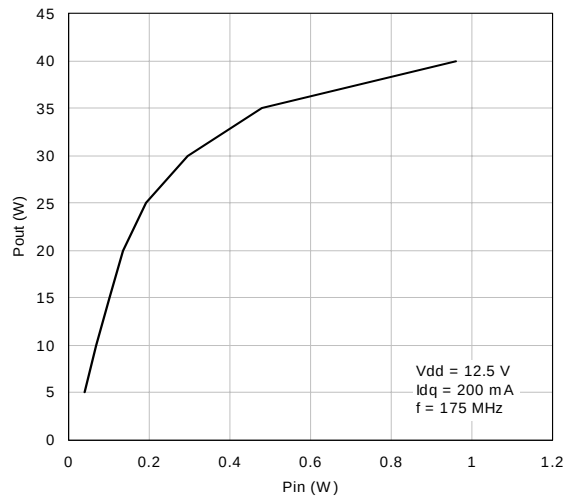
## 500 MHz TEST CIRCUIT COMPONENT PART LIST

| COMPONENT            | DESCRIPTION                                                               |
|----------------------|---------------------------------------------------------------------------|
| B1,B2                | FERRITE BEAD                                                              |
| C1,C13               | 300 pF, 100 mil CHIP CAPACITOR                                            |
| C2,C3,C4,C12,C13,C14 | 1 to 20 pF TRIMMER CAPACITOR                                              |
| C6                   | 39 pF ATC 100B SURFACE MOUNT CERAMIC CHIP CAPACITOR                       |
| C7, C19              | 120 pF 100 mil CHIP CAPACITOR                                             |
| C10, C16             | 10 $\mu$ F, 50 V ELECTROLYTIC CAPACITOR                                   |
| C9, C17              | 0.1 mF, 100 mil CHIP CAP                                                  |
| C8, C18              | 1.000 pF 100 mil CHIP CAP                                                 |
| C5, C11              | 33 pF, 100 mil CHIP CAP                                                   |
| L1                   | 56 nH, 7 TURN, COILCRAFT                                                  |
| N1, N2               | TYPE N FLANGE MOUNT                                                       |
| R1                   | 15 $\Omega$ , 1 W CHIP RESISTOR                                           |
| R2                   | 1 k $\Omega$ , 1 W CHIP RESISTOR                                          |
| R3                   | 33 k $\Omega$ , 1 W CHIP RESISTOR                                         |
| Z1                   | 0.471" x 0.080" MICROSTRIP                                                |
| Z2                   | 1.082" x 0.080" MICROSTRIP                                                |
| Z3                   | 0.372" x 0.080" MICROSTRIP                                                |
| Z4,Z5                | 0.260" x 0.223" MICROSTRIP                                                |
| Z6                   | 0.050" x 0.080" MICROSTRIP                                                |
| Z7                   | 0.551" x 0.080" MICROSTRIP                                                |
| Z8                   | 0.825" x 0.080" MICROSTRIP                                                |
| Z9                   | 0.489" x 0.080" MICROSTRIP                                                |
| BOARD                | ROGER, ULTRA LAM 2000 THK 0.030", $\epsilon_r = 2.55$ 2oz. ED Cu 2 SIDES. |

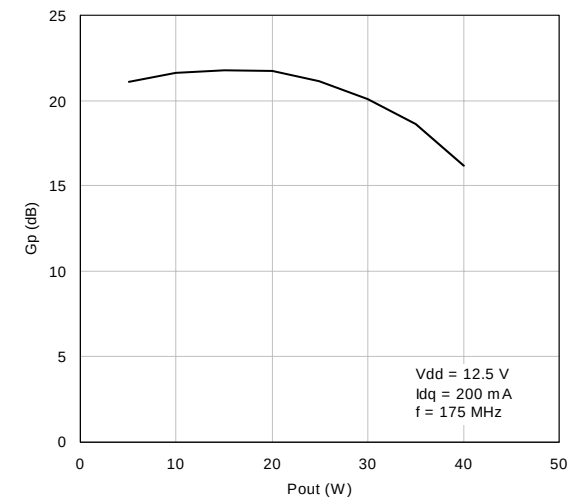
PD55035 - PD55035S

TYPICAL PERFORMANCE 175 MHz (PD55035S)

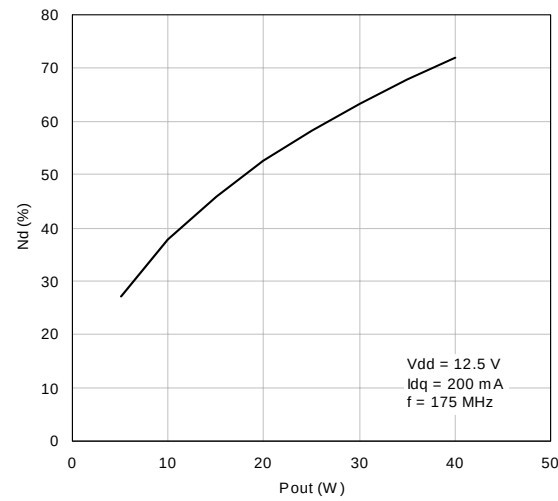
Output Power vs. Input Power



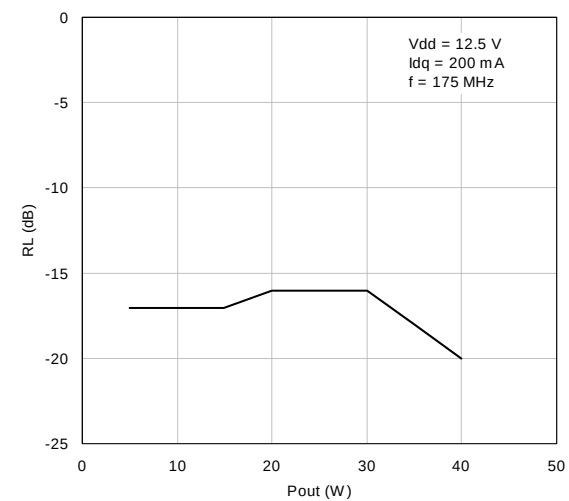
Power Gain vs. Output Power



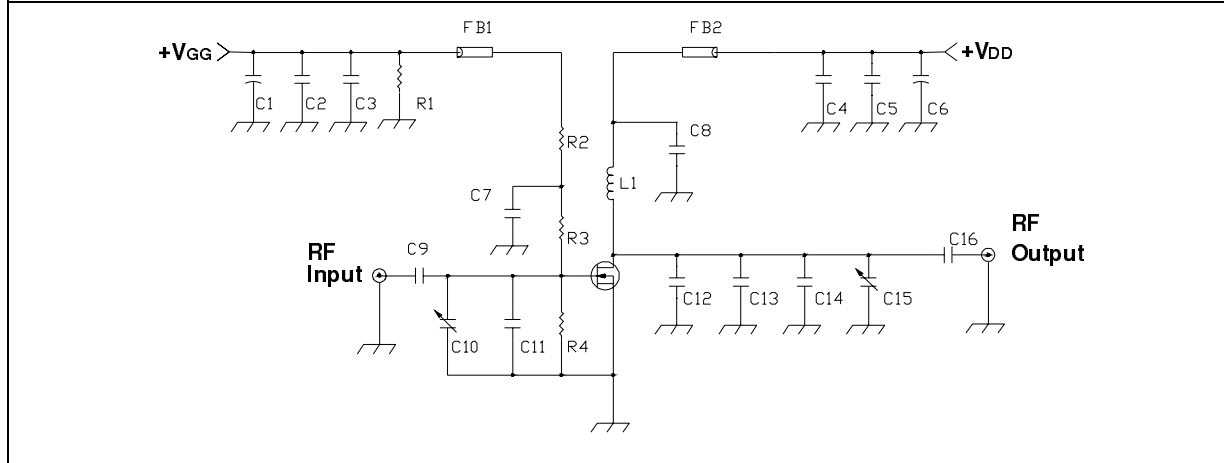
Efficiency vs. Output Power



Input Return Loss vs. Output Power



### 175 MHz TEST CIRCUIT SCHEMATIC (ENGINEERING)



### 175 MHz TEST CIRCUIT COMPONENT PART LIST

| COMPONENT | DESCRIPTION                                                               |
|-----------|---------------------------------------------------------------------------|
| C1,C6     | 10 $\mu$ F ELECTROLYTIC CAPACITOR                                         |
| C2,C5     | 0.1 $\mu$ F CHIP CAPACITOR                                                |
| C3, C4    | 0.01 $\mu$ F CHIP CAPACITOR                                               |
| C7, C8    | 1200 pF CHIP CAPACITOR                                                    |
| C9, C16   | 1000 pF CHIP CAPACITOR                                                    |
| C10       | ARCO 406 TRIMMER CAPACITOR                                                |
| C11       | 62 pF CHIP CAPACITOR                                                      |
| C12       | 15 pF CHIP CAPACITOR                                                      |
| C13       | 20 pF CHIP CAPACITOR                                                      |
| C14       | 75 pF CHIP CAPACITOR                                                      |
| C15       | JOHANSON 1-20 pF TRIMMER CAPACITOR                                        |
| R1        | 33 k $\Omega$ CHIP RESISTOR                                               |
| R2        | 18 $\Omega$ CHIP RESISTOR                                                 |
| R3        | 27 $\Omega$ CHIP RESISTOR                                                 |
| R4        | 47 $\Omega$ CHIP RESISTOR                                                 |
| L1        | 5 TURN, 16 AWG MAGNETWIRE, ID = 0.25", INDUCTOR                           |
| FB1, FB2  | FERRITE BEAD                                                              |
| BOARD     | ROGER, ULTRA LAM 2000 THK 0.030", $\epsilon_r = 2.55$ 2oz. ED Cu 2 SIDES. |

**PD55035 - PD55035S****COMMON SOURCE S-PARAMETER (PD55035S)**(V<sub>DS</sub> = 12.5V I<sub>DS</sub> = 500mA)

| FREQ<br>(MHz) | S <sub>11</sub> | ∠S <sub>11</sub> | S <sub>21</sub> | ∠S <sub>21</sub> | S <sub>12</sub> | ∠S <sub>12</sub> | S <sub>22</sub> | ∠S <sub>22</sub> |
|---------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| 50            | 0.823           | -162             | 14.28           | 86               | 0.015           | -3               | 0.782           | -168             |
| 100           | 0.855           | -169             | 6.87            | 75               | 0.015           | -11              | 0.798           | -171             |
| 150           | 0.875           | -172             | 4.50            | 68               | 0.014           | -17              | 0.813           | -172             |
| 200           | 0.891           | -173             | 3.18            | 60               | 0.013           | -24              | 0.835           | -172             |
| 250           | 0.902           | -174             | 2.42            | 53               | 0.012           | -29              | 0.856           | -172             |
| 300           | 0.918           | -175             | 1.90            | 47               | 0.011           | -32              | 0.876           | -173             |
| 350           | 0.924           | -176             | 1.52            | 42               | 0.010           | -36              | 0.890           | -173             |
| 400           | 0.934           | -176             | 1.25            | 37               | 0.008           | -37              | 0.903           | -174             |
| 450           | 0.940           | -177             | 1.03            | 33               | 0.007           | -38              | 0.918           | -175             |
| 500           | 0.949           | -177             | 0.87            | 29               | 0.007           | -40              | 0.928           | -175             |
| 550           | 0.956           | -178             | 0.74            | 26               | 0.005           | -40              | 0.935           | -176             |
| 600           | 0.958           | -179             | 0.65            | 23               | 0.004           | -36              | 0.946           | -177             |
| 650           | 0.963           | -180             | 0.56            | 20               | 0.004           | -36              | 0.952           | -178             |
| 700           | 0.968           | 180              | 0.49            | 18               | 0.003           | -27              | 0.955           | -178             |
| 750           | 0.971           | 179              | 0.44            | 15               | 0.003           | -21              | 0.959           | -179             |
| 800           | 0.970           | 179              | 0.39            | 13               | 0.002           | -5               | 0.962           | -179             |
| 850           | 0.973           | 178              | 0.35            | 12               | 0.002           | 11               | 0.967           | -180             |
| 900           | 0.975           | 178              | 0.32            | 10               | 0.002           | 24               | 0.967           | 179              |
| 950           | 0.974           | 177              | 0.29            | 8                | 0.002           | 27               | 0.971           | 179              |
| 1000          | 0.976           | 177              | 0.26            | 7                | 0.003           | 47               | 0.972           | 178              |
| 1050          | 0.977           | 176              | 0.24            | 5                | 0.002           | 61               | 0.976           | 178              |
| 1100          | 0.976           | 176              | 0.22            | 4                | 0.003           | 69               | 0.976           | 177              |
| 1150          | 0.978           | 176              | 0.20            | 2                | 0.003           | 72               | 0.974           | 177              |
| 1200          | 0.979           | 175              | 0.19            | 1                | 0.004           | 78               | 0.975           | 176              |
| 1250          | 0.980           | 175              | 0.18            | -1               | 0.004           | 87               | 0.977           | 176              |
| 1300          | 0.979           | 174              | 0.16            | -2               | 0.005           | 86               | 0.976           | 176              |
| 1350          | 0.977           | 174              | 0.15            | -3               | 0.006           | 88               | 0.975           | 175              |
| 1400          | 0.975           | 174              | 0.14            | -3               | 0.006           | 91               | 0.977           | 174              |
| 1450          | 0.974           | 173              | 0.13            | -3               | 0.006           | 97               | 0.975           | 174              |
| 1500          | 0.972           | 173              | 0.12            | -4               | 0.007           | 117              | 0.969           | 174              |



**COMMON SOURCE S-PARAMETER (PD55035S)**(V<sub>DS</sub> = 12.5V I<sub>DS</sub> = 1A)

| FREQ<br>(MHz) | S <sub>11</sub> | ∠S <sub>11</sub> ° | S <sub>21</sub> | ∠S <sub>21</sub> ° | S <sub>12</sub> | ∠S <sub>12</sub> ° | S <sub>22</sub> | ∠S <sub>22</sub> ° |
|---------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| 50            | 0.845           | -165               | 14.89           | 87                 | 0.012           | 0                  | 0.818           | -171               |
| 100           | 0.877           | -171               | 7.23            | 78                 | 0.011           | -8                 | 0.829           | -174               |
| 150           | 0.894           | -174               | 4.81            | 72                 | 0.011           | -12                | 0.836           | -175               |
| 200           | 0.905           | -175               | 3.46            | 65                 | 0.010           | -17                | 0.849           | -175               |
| 250           | 0.909           | -176               | 2.69            | 59                 | 0.010           | -20                | 0.863           | -175               |
| 300           | 0.920           | -176               | 2.15            | 54                 | 0.009           | -23                | 0.877           | -175               |
| 350           | 0.924           | -177               | 1.75            | 48                 | 0.008           | -27                | 0.887           | -175               |
| 400           | 0.933           | -177               | 1.46            | 44                 | 0.007           | -28                | 0.898           | -176               |
| 450           | 0.937           | -178               | 1.22            | 39                 | 0.007           | -28                | 0.910           | -176               |
| 500           | 0.946           | -178               | 1.05            | 36                 | 0.006           | -28                | 0.919           | -177               |
| 550           | 0.951           | -179               | 0.90            | 32                 | 0.005           | -26                | 0.925           | -177               |
| 600           | 0.953           | -180               | 0.79            | 29                 | 0.004           | -23                | 0.936           | -178               |
| 650           | 0.959           | 180                | 0.69            | 26                 | 0.004           | -19                | 0.942           | -178               |
| 700           | 0.963           | 179                | 0.61            | 24                 | 0.003           | -13                | 0.946           | -179               |
| 750           | 0.965           | 179                | 0.55            | 21                 | 0.003           | -4                 | 0.951           | -179               |
| 800           | 0.964           | 178                | 0.49            | 19                 | 0.003           | 6                  | 0.954           | -180               |
| 850           | 0.967           | 178                | 0.44            | 17                 | 0.003           | 14                 | 0.960           | 180                |
| 900           | 0.970           | 177                | 0.40            | 15                 | 0.003           | 31                 | 0.960           | 179                |
| 950           | 0.971           | 177                | 0.37            | 13                 | 0.003           | 39                 | 0.965           | 179                |
| 1000          | 0.972           | 176                | 0.34            | 11                 | 0.003           | 55                 | 0.964           | 178                |
| 1050          | 0.972           | 176                | 0.31            | 9                  | 0.003           | 53                 | 0.970           | 178                |
| 1100          | 0.973           | 176                | 0.29            | 8                  | 0.003           | 64                 | 0.969           | 177                |
| 1150          | 0.975           | 175                | 0.26            | 6                  | 0.004           | 70                 | 0.966           | 179                |
| 1200          | 0.976           | 175                | 0.25            | 4                  | 0.004           | 75                 | 0.971           | 176                |
| 1250          | 0.975           | 174                | 0.22            | 3                  | 0.005           | 85                 | 0.972           | 176                |
| 1300          | 0.975           | 174                | 0.21            | 2                  | 0.005           | 81                 | 0.970           | 175                |
| 1350          | 0.974           | 174                | 0.19            | 1                  | 0.005           | 85                 | 0.970           | 175                |
| 1400          | 0.973           | 174                | 0.18            | 0                  | 0.006           | 89                 | 0.971           | 174                |
| 1450          | 0.972           | 173                | 0.17            | -1                 | 0.006           | 95                 | 0.971           | 174                |
| 1500          | 0.970           | 173                | 0.16            | -1                 | 0.008           | 110                | 0.965           | 174                |

**PD55035 - PD55035S****COMMON SOURCE S-PARAMETER (PD55035S)**(V<sub>DS</sub> = 12.5V I<sub>DS</sub> = 2A)

| FREQ<br>(MHz) | S <sub>11</sub> | ∠S <sub>11</sub> ° | S <sub>21</sub> | ∠S <sub>21</sub> ° | S <sub>12</sub> | ∠S <sub>12</sub> ° | S <sub>22</sub> | ∠S <sub>22</sub> ° |
|---------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| 50            | 0.863           | -165               | 15.03           | 88                 | 0.010           | 0                  | 0.841           | -173               |
| 100           | 0.892           | -171               | 7.33            | 80                 | 0.009           | -5                 | 0.848           | -176               |
| 150           | 0.909           | -174               | 4.91            | 74                 | 0.009           | -9                 | 0.853           | -176               |
| 200           | 0.916           | -176               | 3.56            | 68                 | 0.009           | -11                | 0.860           | -176               |
| 250           | 0.920           | -177               | 2.81            | 63                 | 0.008           | -12                | 0.872           | -177               |
| 300           | 0.927           | -177               | 2.26            | 58                 | 0.008           | -15                | 0.880           | -177               |
| 350           | 0.929           | -178               | 1.86            | 52                 | 0.007           | -18                | 0.889           | -177               |
| 400           | 0.935           | -178               | 1.57            | 48                 | 0.006           | -20                | 0.896           | -177               |
| 450           | 0.938           | -179               | 1.33            | 44                 | 0.006           | -20                | 0.906           | -178               |
| 500           | 0.944           | -179               | 1.14            | 40                 | 0.005           | -16                | 0.914           | -177               |
| 550           | 0.950           | -180               | 0.99            | 37                 | 0.005           | -15                | 0.918           | -178               |
| 600           | 0.952           | 180                | 0.87            | 33                 | 0.004           | -14                | 0.929           | -179               |
| 650           | 0.956           | 179                | 0.77            | 30                 | 0.004           | -9                 | 0.935           | -179               |
| 700           | 0.960           | 179                | 0.69            | 28                 | 0.003           | 4                  | 0.940           | -179               |
| 750           | 0.964           | 179                | 0.61            | 25                 | 0.003           | 11                 | 0.946           | 180                |
| 800           | 0.964           | 178                | 0.55            | 23                 | 0.003           | 20                 | 0.949           | 180                |
| 850           | 0.965           | 177                | 0.50            | 21                 | 0.003           | 32                 | 0.955           | 179                |
| 900           | 0.968           | 177                | 0.46            | 18                 | 0.003           | 38                 | 0.954           | 179                |
| 950           | 0.969           | 177                | 0.42            | 17                 | 0.003           | 46                 | 0.959           | 178                |
| 1000          | 0.971           | 176                | 0.39            | 14                 | 0.003           | 47                 | 0.959           | 177                |
| 1050          | 0.971           | 176                | 0.36            | 12                 | 0.004           | 57                 | 0.967           | 177                |
| 1100          | 0.970           | 176                | 0.33            | 11                 | 0.004           | 60                 | 0.964           | 177                |
| 1150          | 0.973           | 175                | 0.30            | 9                  | 0.004           | 69                 | 0.964           | 176                |
| 1200          | 0.975           | 175                | 0.28            | 7                  | 0.004           | 72                 | 0.966           | 176                |
| 1250          | 0.973           | 174                | 0.26            | 5                  | 0.005           | 78                 | 0.971           | 175                |
| 1300          | 0.971           | 174                | 0.24            | 4                  | 0.006           | 80                 | 0.968           | 175                |
| 1350          | 0.973           | 174                | 0.23            | 3                  | 0.006           | 83                 | 0.970           | 174                |
| 1400          | 0.971           | 173                | 0.21            | 2                  | 0.006           | 83                 | 0.971           | 174                |
| 1450          | 0.969           | 173                | 0.20            | 1                  | 0.006           | 91                 | 0.970           | 174                |
| 1500          | 0.968           | 173                | 0.18            | 1                  | 0.008           | 112                | 0.969           | 173                |

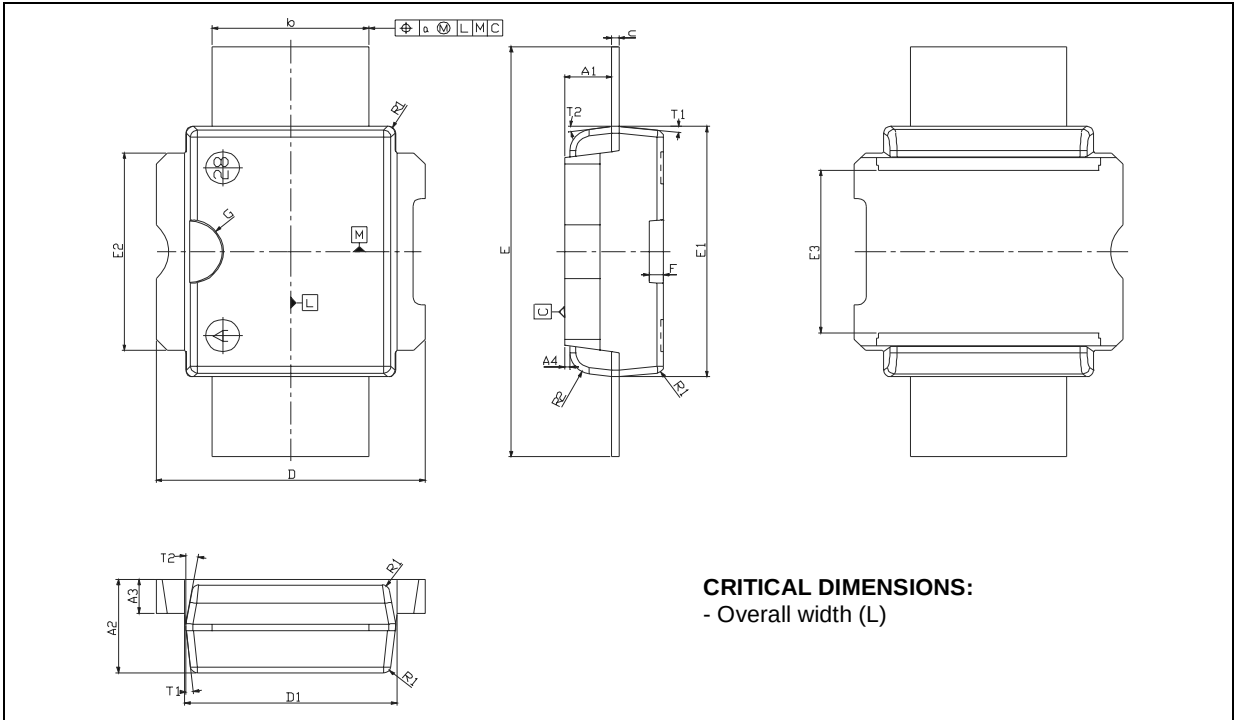
**COMMON SOURCE S-PARAMETER (PD55035S)**(V<sub>DS</sub> = 12.5V I<sub>DS</sub> = 3A)

| FREQ<br>(MHz) | S <sub>11</sub> | ∠S <sub>11</sub> ° | S <sub>21</sub> | ∠S <sub>21</sub> ° | S <sub>12</sub> | ∠S <sub>12</sub> ° | S <sub>22</sub> | ∠S <sub>22</sub> ° |
|---------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| 50            | 0.867           | -165               | 14.95           | 88                 | 0.009           | 2                  | 0.848           | -174               |
| 100           | 0.896           | -171               | 7.31            | 80                 | 0.009           | -4                 | 0.856           | -177               |
| 150           | 0.913           | -175               | 4.92            | 75                 | 0.008           | -7                 | 0.861           | -177               |
| 200           | 0.921           | -176               | 3.57            | 69                 | 0.008           | -9                 | 0.866           | -177               |
| 250           | 0.921           | -177               | 2.82            | 64                 | 0.008           | -13                | 0.874           | -177               |
| 300           | 0.929           | -178               | 2.28            | 59                 | 0.007           | -12                | 0.882           | -177               |
| 350           | 0.930           | -178               | 1.90            | 54                 | 0.007           | -14                | 0.888           | -178               |
| 400           | 0.936           | -178               | 1.59            | 50                 | 0.006           | -16                | 0.896           | -177               |
| 450           | 0.938           | -179               | 1.36            | 45                 | 0.005           | -14                | 0.904           | -178               |
| 500           | 0.947           | -179               | 1.17            | 42                 | 0.005           | -11                | 0.915           | -178               |
| 550           | 0.950           | 180                | 1.02            | 38                 | 0.004           | -10                | 0.917           | -178               |
| 600           | 0.951           | 180                | 0.90            | 35                 | 0.004           | -6                 | 0.927           | -179               |
| 650           | 0.956           | 179                | 0.79            | 32                 | 0.004           | -3                 | 0.934           | -179               |
| 700           | 0.960           | 179                | 0.71            | 29                 | 0.003           | 4                  | 0.935           | -179               |
| 750           | 0.963           | 178                | 0.64            | 26                 | 0.003           | 17                 | 0.943           | 180                |
| 800           | 0.962           | 178                | 0.58            | 24                 | 0.003           | 21                 | 0.948           | 179                |
| 850           | 0.964           | 177                | 0.52            | 22                 | 0.004           | 32                 | 0.951           | 179                |
| 900           | 0.967           | 177                | 0.48            | 20                 | 0.003           | 41                 | 0.949           | 178                |
| 950           | 0.969           | 177                | 0.44            | 18                 | 0.003           | 36                 | 0.958           | 178                |
| 1000          | 0.969           | 176                | 0.40            | 15                 | 0.004           | 53                 | 0.956           | 178                |
| 1050          | 0.969           | 176                | 0.37            | 14                 | 0.004           | 58                 | 0.963           | 177                |
| 1100          | 0.969           | 175                | 0.34            | 12                 | 0.004           | 64                 | 0.963           | 177                |
| 1150          | 0.971           | 175                | 0.32            | 10                 | 0.004           | 69                 | 0.961           | 176                |
| 1200          | 0.973           | 175                | 0.30            | 8                  | 0.004           | 71                 | 0.965           | 176                |
| 1250          | 0.971           | 174                | 0.27            | 6                  | 0.005           | 77                 | 0.967           | 175                |
| 1300          | 0.971           | 174                | 0.26            | 5                  | 0.006           | 78                 | 0.970           | 174                |
| 1350          | 0.973           | 174                | 0.24            | 4                  | 0.006           | 80                 | 0.965           | 175                |
| 1400          | 0.970           | 173                | 0.22            | 2                  | 0.007           | 87                 | 0.973           | 174                |
| 1450          | 0.968           | 173                | 0.21            | 3                  | 0.006           | 91                 | 0.967           | 174                |
| 1500          | 0.968           | 173                | 0.19            | 1                  | 0.008           | 111                | 0.965           | 173                |

PowerSO-10RF Straight Lead MECHANICAL DATA

| DIM. | mm    |        |       | Inch  |        |       |
|------|-------|--------|-------|-------|--------|-------|
|      | MIN.  | TYP.   | MAX   | MIN.  | TYP.   | MAX   |
| A1   | 1.62  | 1.67   | 1.72  | 0.064 | 0.065  | 0.068 |
| A2   | 3.4   | 3.5    | 3.6   | 0.134 | 0.137  | 0.142 |
| A3   | 1.2   | 1.3    | 1.4   | 0.046 | 0.05   | 0.054 |
| A4   | 0.15  | 0.2    | 0.25  | 0.005 | 0.007  | 0.009 |
| a    |       | 0.2    |       |       | 0.007  |       |
| b    | 5.4   | 5.53   | 5.65  | 0.212 | 0.217  | 0.221 |
| c    | 0.23  | 0.27   | 0.32  | 0.008 | 0.01   | 0.012 |
| D    | 9.4   | 9.5    | 9.6   | 0.370 | 0.374  | 0.377 |
| D1   | 7.4   | 7.5    | 7.6   | 0.290 | 0.295  | 0.298 |
| E    | 15.15 | 15.4   | 15.65 | 0.595 | 0.606  | 0.615 |
| E1   | 9.3   | 9.4    | 9.5   | 0.365 | 0.37   | 0.375 |
| E2   | 7.3   | 7.4    | 7.5   | 0.286 | 0.292  | 0.294 |
| E3   | 5.9   | 6.1    | 6.3   | 0.231 | 0.24   | 0.247 |
| F    |       | 0.5    |       |       | 0.019  |       |
| G    |       | 1.2    |       |       | 0.047  |       |
| R1   |       |        | 0.25  |       |        | 0.01  |
| R2   |       | 0.8    |       |       | 0.031  |       |
| T1   |       | 6 deg  |       |       | 6 deg  |       |
| T2   |       | 10 deg |       |       | 10 deg |       |

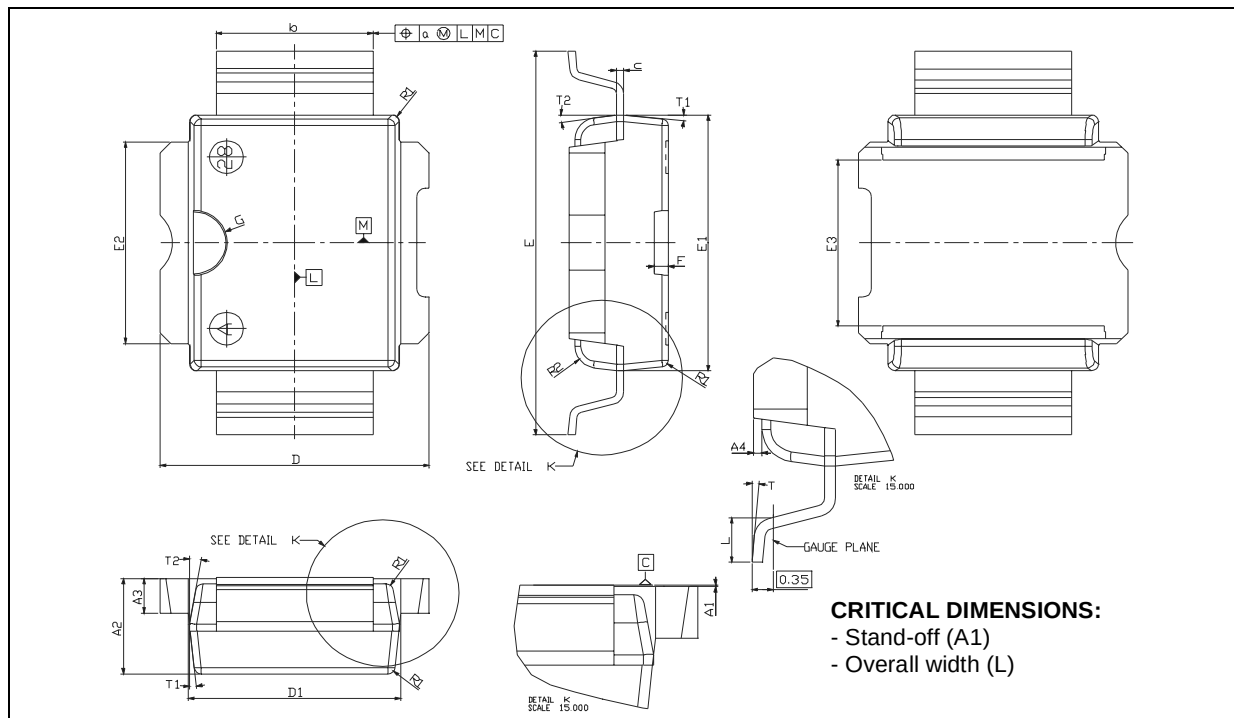
Note (1): Resin protrusions not included (max value: 0.15 mm per side)



**PowerSO-10RF Formed Lead (Gull Wing) MECHANICAL DATA**

| DIM. | mm    |        |       | Inch  |        |        |
|------|-------|--------|-------|-------|--------|--------|
|      | MIN.  | TYP.   | MAX   | MIN.  | TYP.   | MAX    |
| A1   | 0     | 0.05   | 0.1   | 0.    | 0.0019 | 0.0038 |
| A2   | 3.4   | 3.5    | 3.6   | 0.134 | 0.137  | 0.142  |
| A3   | 1.2   | 1.3    | 1.4   | 0.046 | 0.05   | 0.054  |
| A4   | 0.15  | 0.2    | 0.25  | 0.005 | 0.007  | 0.009  |
| a    |       | 0.2    |       |       | 0.007  |        |
| b    | 5.4   | 5.53   | 5.65  | 0.212 | 0.217  | 0.221  |
| c    | 0.23  | 0.27   | 0.32  | 0.008 | 0.01   | 0.012  |
| D    | 9.4   | 9.5    | 9.6   | 0.370 | 0.374  | 0.377  |
| D1   | 7.4   | 7.5    | 7.6   | 0.290 | 0.295  | 0.298  |
| E    | 13.85 | 14.1   | 14.35 | 0.544 | 0.555  | 0.565  |
| E1   | 9.3   | 9.4    | 9.5   | 0.365 | 0.37   | 0.375  |
| E2   | 7.3   | 7.4    | 7.5   | 0.286 | 0.292  | 0.294  |
| E3   | 5.9   | 6.1    | 6.3   | 0.231 | 0.24   | 0.247  |
| F    |       | 0.5    |       |       | 0.019  |        |
| G    |       | 1.2    |       |       | 0.047  |        |
| L    | 0.8   | 1      | 1.1   | 0.030 | 0.039  | 0.042  |
| R1   |       |        | 0.25  |       |        | 0.01   |
| R2   |       | 0.8    |       |       | 0.031  |        |
| T    | 2 deg | 5 deg  | 8 deg | 2 deg | 5 deg  | 8 deg  |
| T1   |       | 6 deg  |       |       | 6 deg  |        |
| T2   |       | 10 deg |       |       | 10 deg |        |

Note (1): Resin protrusions not included (max value: 0.15 mm per side)



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