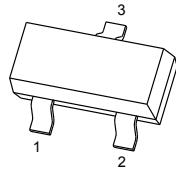


FEATURE

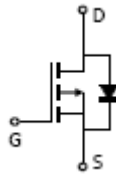
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

SOT-23

1. GATE
2. SOURCE
3. DRAIN

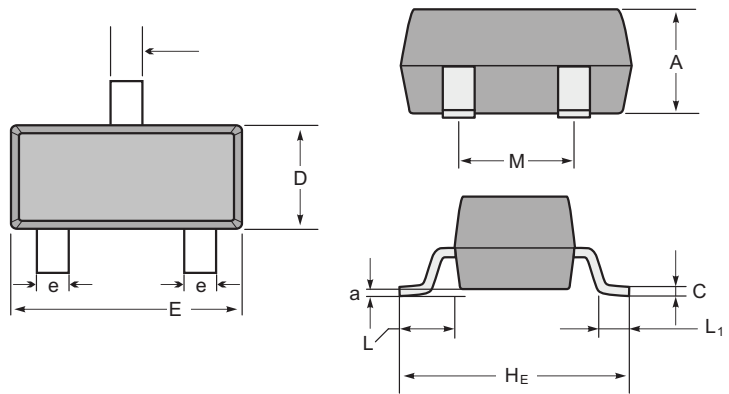


Equivalent Circuit



Marking

| Type number | Marking code |
|-------------|--------------|
| DMP3098L | A79T |



SOT-23 mechanical data

| UNIT | | A | C | D | E | H _E | e | M | L | L ₁ | a |
|------|-----|-----|------|-----|-----|----------------|-----|------|------------|----------------|------|
| mm | max | 1.1 | 0.15 | 1.4 | 3.0 | 2.6 | 0.5 | 1.95 | 0.55 (ref) | 0.36 (ref) | 0.0 |
| | min | 0.9 | 0.08 | 1.2 | 2.8 | 2.2 | 0.3 | 1.7 | | | 0.15 |
| mil | max | 43 | 6 | 55 | 118 | 102 | 20 | 77 | 22 (ref) | 14 (ref) | 0.0 |
| | min | 35 | 3 | 47 | 110 | 87 | 12 | 67 | | | 6 |

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|--|----------------|------------|--------------------|
| Drain-Source Voltage | V_{DS} | -30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous | I_D | -4.1 | A |
| Drain Current-Pulsed (Note 1) | I_{DM} | -20 | A |
| Maximum Power Dissipation | P_D | 1.2 | W |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 To 150 | $^{\circ}\text{C}$ |

Thermal Characteristic

| | | | |
|--|-----------------|----|----------------------|
| Thermal Resistance, Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 90 | $^{\circ}\text{C/W}$ |
|--|-----------------|----|----------------------|

DMP3098L

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---------------------------------|------------|----------------------------|-----|-----|-----|---------|
| Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=-250\mu A$ | -30 | -33 | - | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-24V, V_{GS}=0V$ | - | - | -1 | μA |

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---|--------------|--|-----|------|-----------|------------|
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | - | - | ± 100 | nA |
| On Characteristics (Note 3) | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -1 | -1.5 | -3 | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-4.1A$ | - | 48 | 65 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-4A$ | - | 60 | 95 | m Ω |
| Forward Transconductance | g_{FS} | $V_{DS}=-5V, I_D=-4.1A$ | 5.5 | - | - | S |
| Dynamic Characteristics (Note 4) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=-15V, V_{GS}=0V,$ $F=1.0\text{MHz}$ | - | 650 | - | PF |
| Output Capacitance | C_{oss} | | - | 105 | - | PF |
| Reverse Transfer Capacitance | C_{rSS} | | - | 65 | - | PF |
| Switching Characteristics (Note 4) | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=-15V, R_L=3.6\Omega$ $V_{GS}=-10V, R_{GEN}=3\Omega$ | - | 8.5 | - | nS |
| Turn-on Rise Time | t_r | | - | 4.5 | - | nS |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 26 | - | nS |
| Turn-Off Fall Time | t_f | | - | 12.5 | - | nS |
| Total Gate Charge | Q_g | $V_{DS}=-15V, I_D=-4A, V_{GS}=-10V$ | - | 12.5 | - | nC |
| Gate-Source Charge | Q_{gs} | | - | 2.8 | - | nC |
| Gate-Drain Charge | Q_{gd} | | - | 2.7 | - | nC |
| Drain-Source Diode Characteristics | | | | | | |
| Diode Forward Voltage (Note 3) | V_{SD} | $V_{GS}=0V, I_S=-4.1A$ | - | - | -1.2 | V |

RATING AND CHARACTERISTIC CURVES (DMP3098L)

Figure 1: Switching Test Circuit

Figure 2: Switching Waveforms

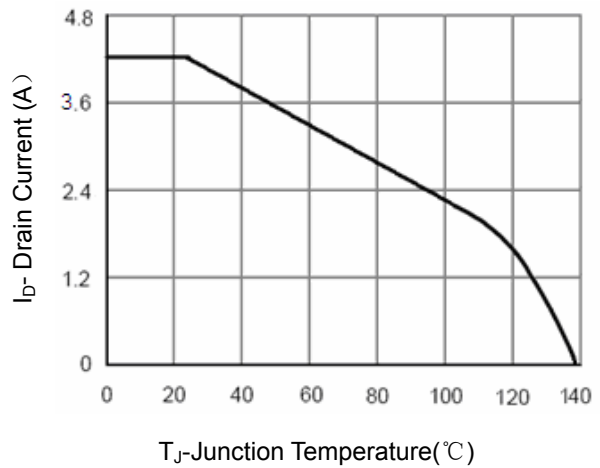
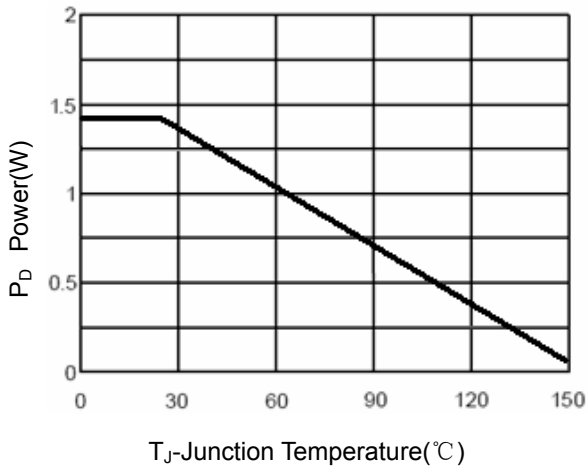


Figure 3 Power Dissipation

Figure 4 Drain Current

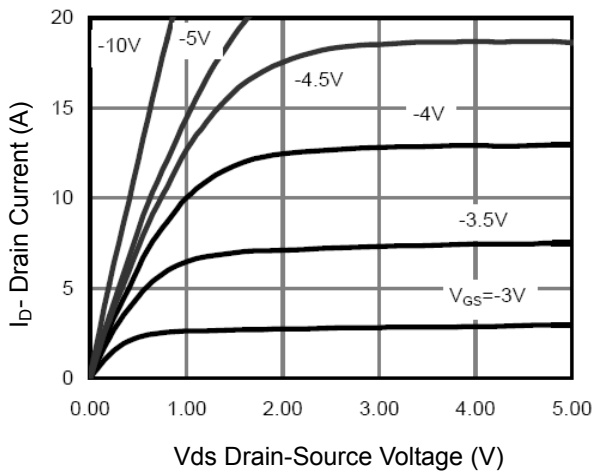


Figure 5 Output Characteristics

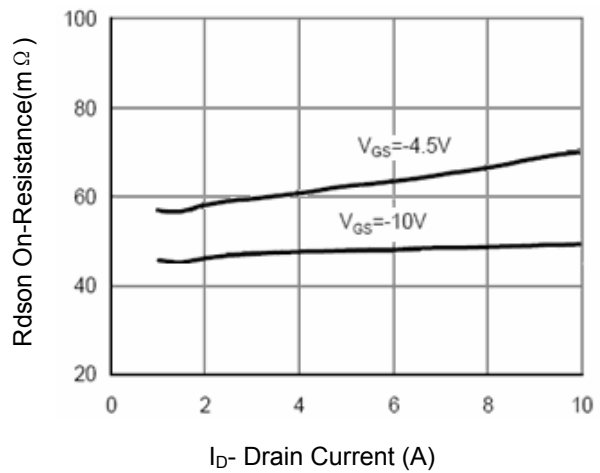


Figure 6 Drain-Source On-Resistance

RATING AND CHARACTERISTIC CURVES (DMP3098L)

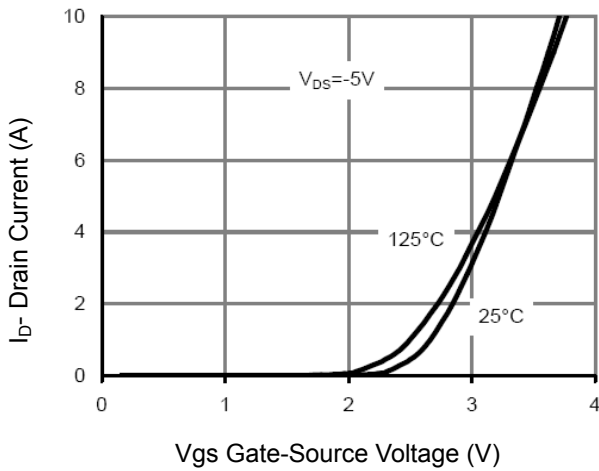


Figure 7 Transfer Characteristics

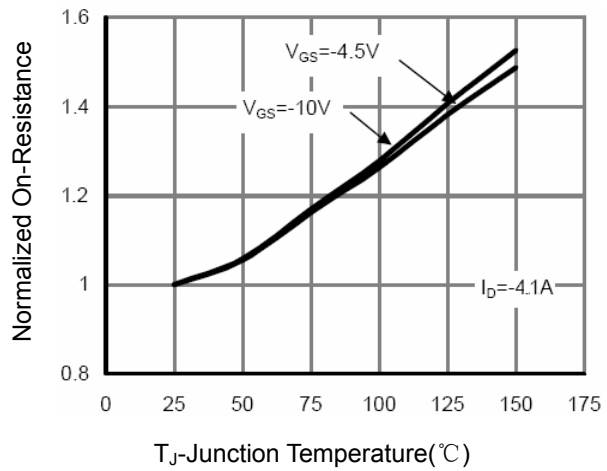


Figure 8 Drain-Source On-Resistance

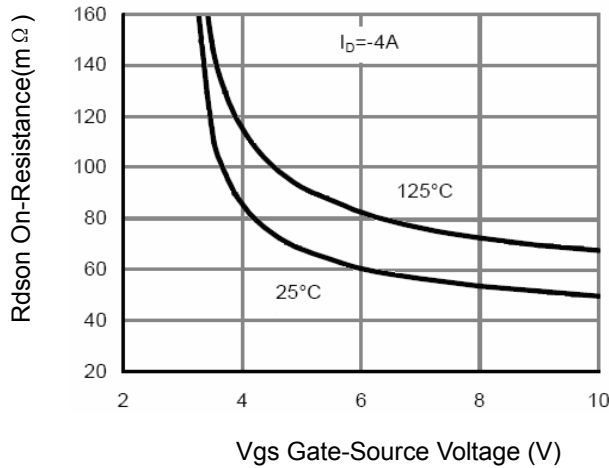


Figure 9 Rds(on) vs Vgs

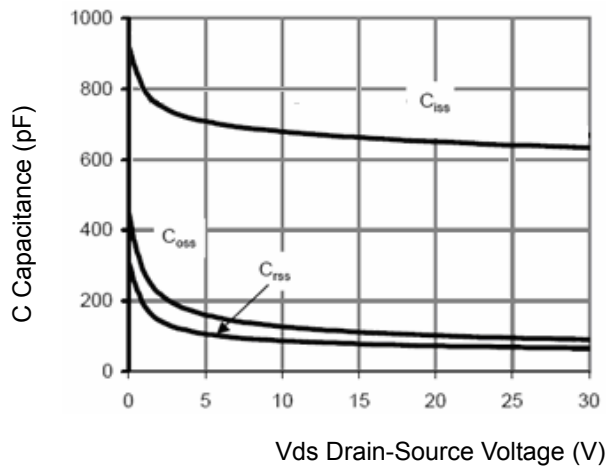


Figure 10 Capacitance vs Vds

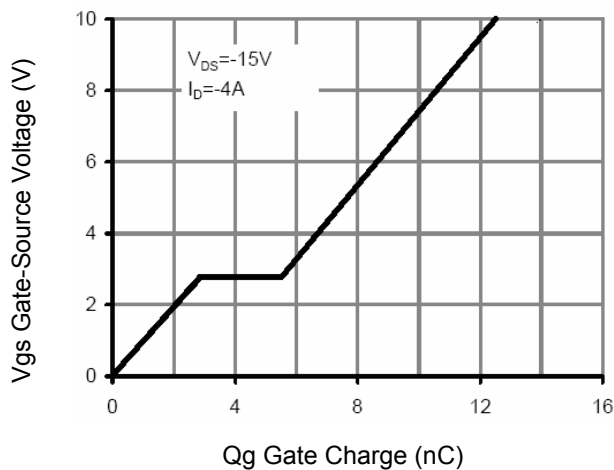


Figure 11 Gate Charge

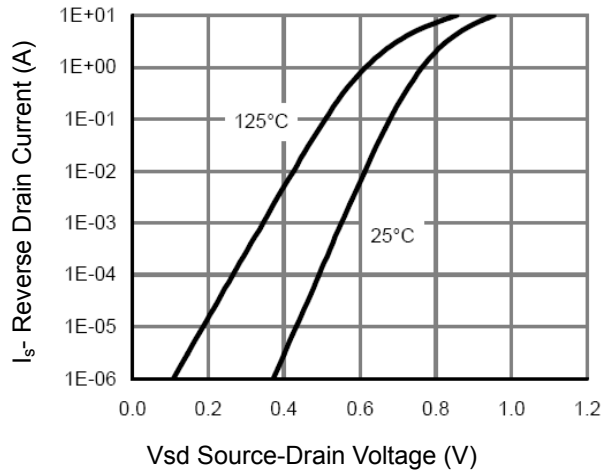


Figure 12 Source- Drain Diode Forward

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