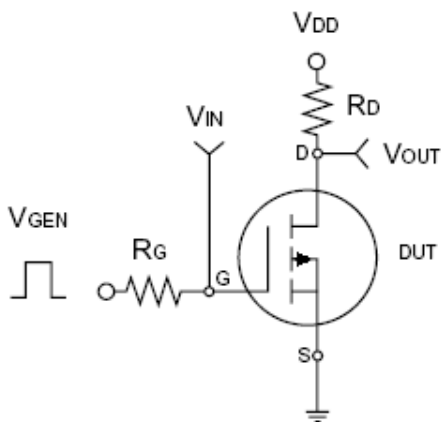


Electrical Specifications

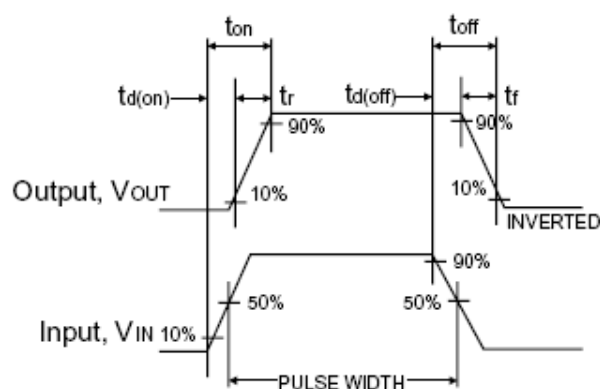
| Parameter | Conditions | Symbol | Min | Typ | Max | Unit |
|----------------------------------|--|--------------|------|------|-----------|------------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | $V_{GS} = 0V, I_D = -250\mu A$ | BV_{DSS} | -20 | -- | -- | V |
| Gate Threshold Voltage | $V_{DS} = V_{GS}, I_D = -250\mu A$ | $V_{GS(TH)}$ | -0.4 | -- | -1.0 | V |
| Zero Gate Voltage Drain Current | $V_{DS} = -16V, V_{GS} = 0V$ | I_{DSS} | -- | -- | -1.0 | μA |
| Gate Body Leakage | $V_{GS} = \pm 8V, V_{DS} = 0V$ | I_{GSS} | -- | -- | ± 100 | nA |
| On-State Drain Current | $V_{DS} \leq -5V, V_{GS} = -4.5V$ | $I_{D(ON)}$ | -20 | -- | -- | A |
| Drain-Source On-State Resistance | $V_{GS} = -4.5V, I_D = -4.7A$ | $R_{DS(ON)}$ | -- | 31 | 39 | m Ω |
| | $V_{GS} = -2.5V, I_D = -4.1A$ | | -- | 41 | 52 | |
| | $V_{GS} = -1.8V, I_D = -2.0A$ | | -- | 54 | 68 | |
| Forward Transconductance | $V_{DS} = -5V, I_D = -4.7A$ | g_{fs} | -- | 16 | -- | S |
| Diode Forward Voltage | $I_S = -1.0A, V_{GS} = 0V$ | V_{SD} | -- | -0.7 | -1.2 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | $V_{DS} = -10V, I_D = -4.7A, V_{GS} = -4.5V$ | Q_g | -- | 12.5 | 19 | nC |
| Gate-Source Charge | | Q_{gs} | -- | 1.7 | -- | |
| Gate-Drain Charge | | Q_{gd} | -- | 3.3 | -- | |
| Input Capacitance | $V_{DS} = -10V, V_{GS} = 0V, f = 1.0MHz$ | C_{iss} | -- | 1020 | -- | pF |
| Output Capacitance | | C_{oss} | -- | 191 | -- | |
| Reverse Transfer Capacitance | | C_{rss} | -- | 140 | -- | |
| Switching^{b,c} | | | | | | |
| Turn-On Delay Time | $V_{DD} = -10V, R_L = 10\Omega, I_D = -1A, V_{GEN} = -4.5V, R_G = 6\Omega$ | $t_{d(on)}$ | -- | 25 | 40 | nS |
| Turn-On Rise Time | | t_r | -- | 43 | 65 | |
| Turn-Off Delay Time | | $t_{d(off)}$ | -- | 71 | 110 | |
| Turn-Off Fall Time | | t_f | -- | 48 | 75 | |

Notes:

- a. pulse test: $PW \leq 300\mu S$, duty cycle $\leq 2\%$
- b. Guaranteed by design of component.
- c. Switching time is essentially independent of operating temperature.



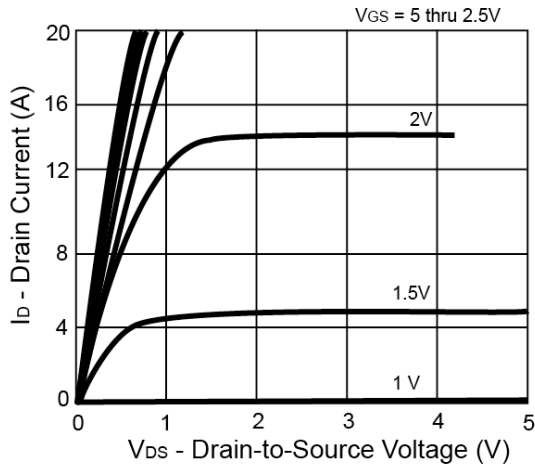
Switching Test Circuit



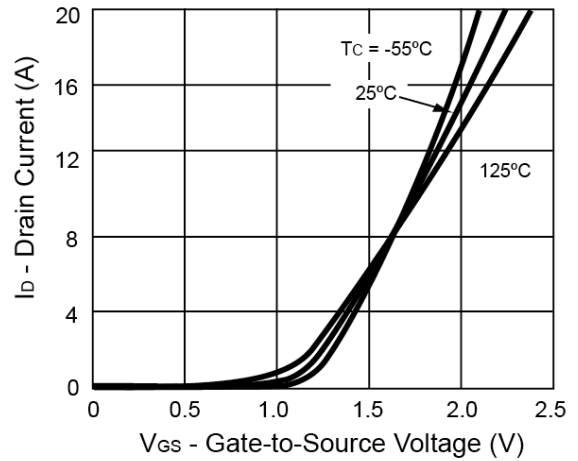
Switchin Waveforms

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

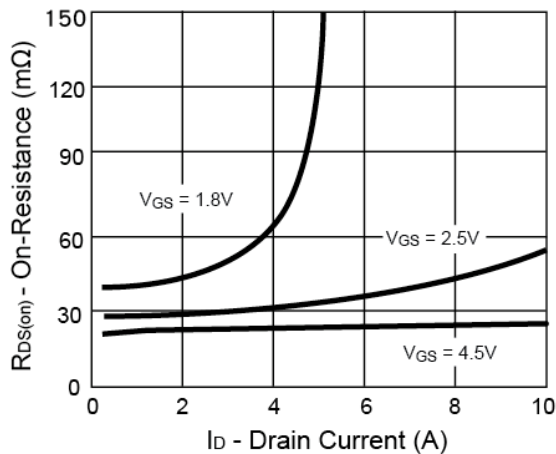
Output Characteristics



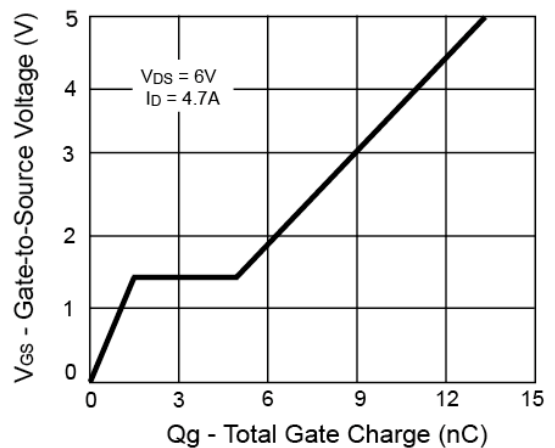
Transfer Characteristics



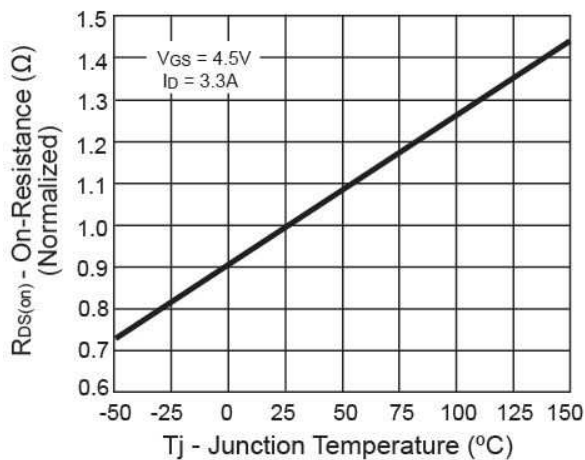
On-Resistance vs. Drain Current



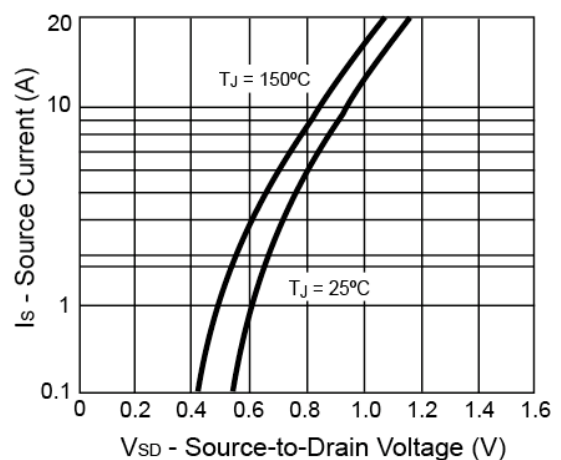
Gate Charge



On-Resistance vs. Junction Temperature

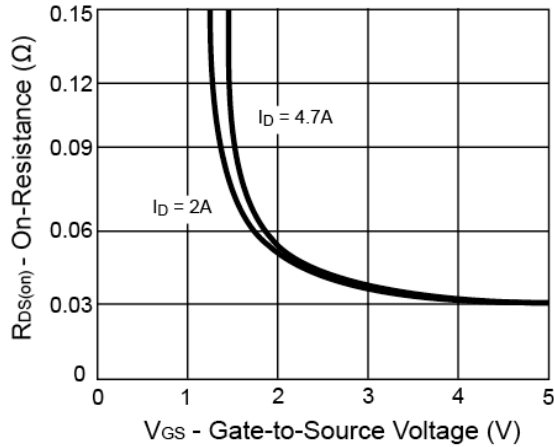


Source-Drain Diode Forward Voltage

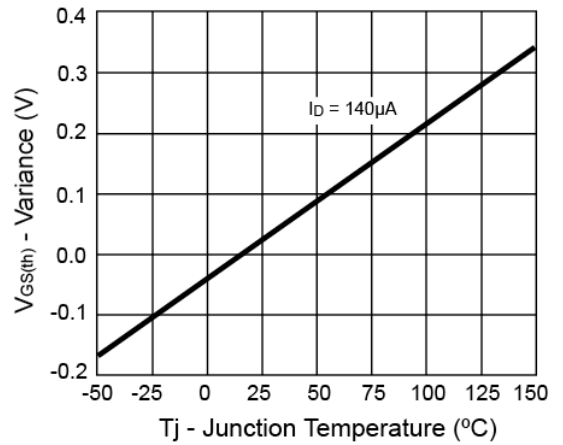


Electrical Characteristics Curve ($T_a = 25^\circ\text{C}$, unless otherwise noted)

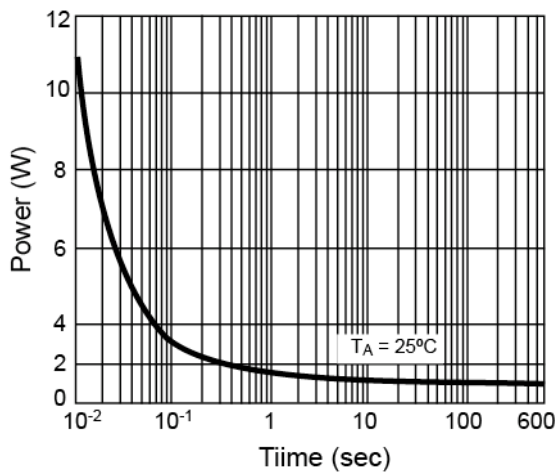
On-Resistance vs. Gate-Source Voltage



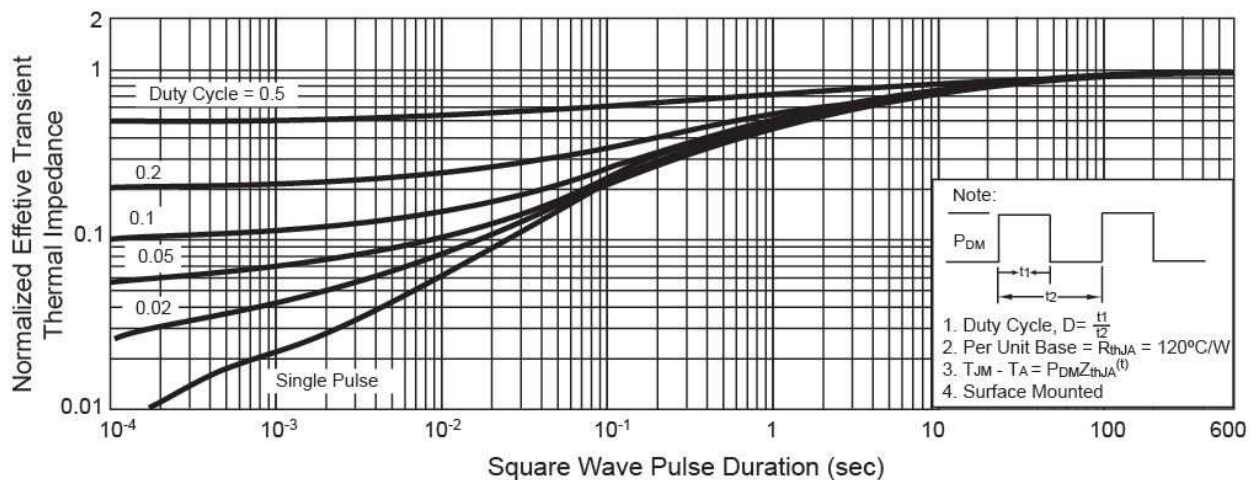
Threshold Voltage



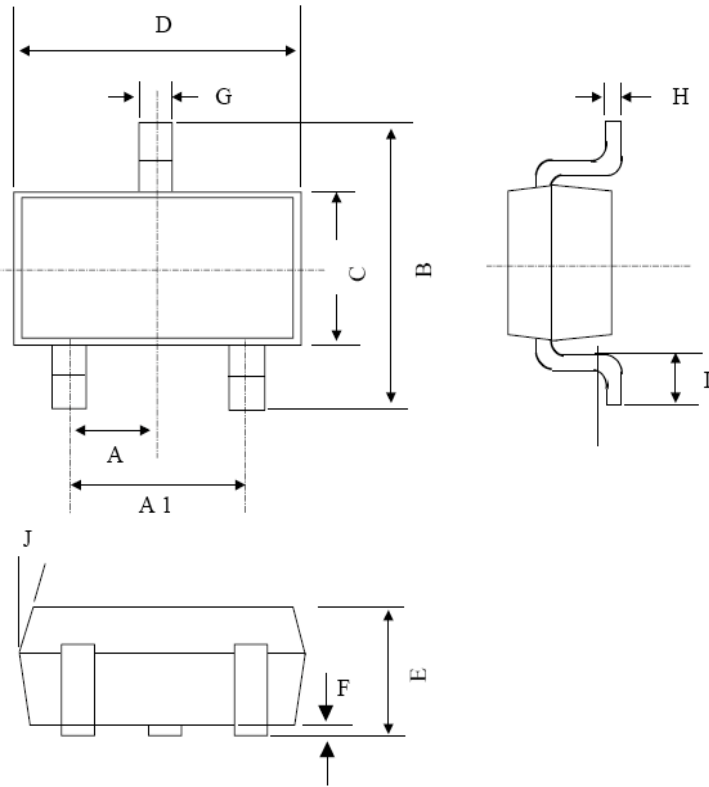
Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient

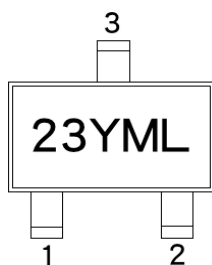


SOT-23 Mechanical Drawing



| SOT-23 DIMENSION | | | | |
|------------------|-------------|------|-----------|-------|
| DIM | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX. |
| A | 0.95 BSC | | 0.037 BSC | |
| A1 | 1.9 BSC | | 0.074 BSC | |
| B | 2.60 | 3.00 | 0.102 | 0.118 |
| C | 1.40 | 1.70 | 0.055 | 0.067 |
| D | 2.80 | 3.10 | 0.110 | 0.122 |
| E | 1.00 | 1.30 | 0.039 | 0.051 |
| F | 0.00 | 0.10 | 0.000 | 0.004 |
| G | 0.35 | 0.50 | 0.014 | 0.020 |
| H | 0.10 | 0.20 | 0.004 | 0.008 |
| I | 0.30 | 0.60 | 0.012 | 0.024 |
| J | 5° | 10° | 5° | 10° |

Marking Diagram



- 23** = Device Code
- Y** = Year Code
- M** = Month Code for Halogen Free Product
 - O** =Jan **P** =Feb **Q** =Mar **R** =Apr
 - S** =May **T** =Jun **U** =Jul **V** =Aug
 - W** =Sep **X** =Oct **Y** =Nov **Z** =Dec
- L** = Lot Code

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