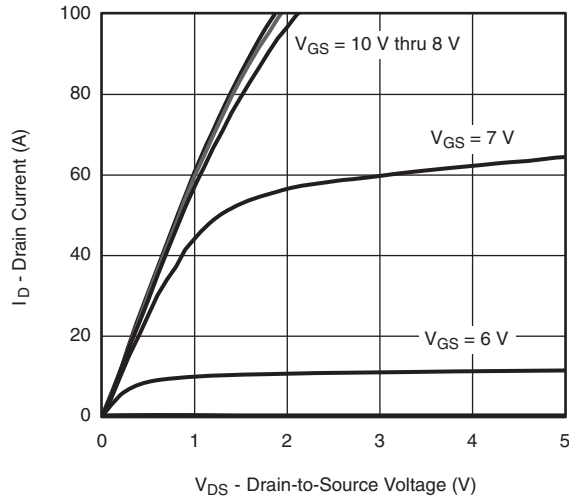
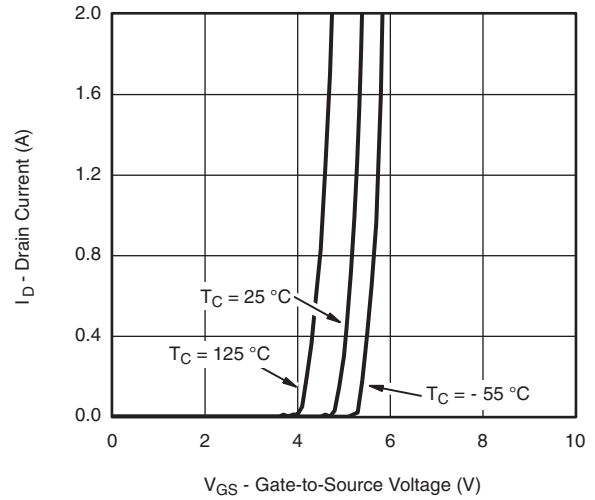
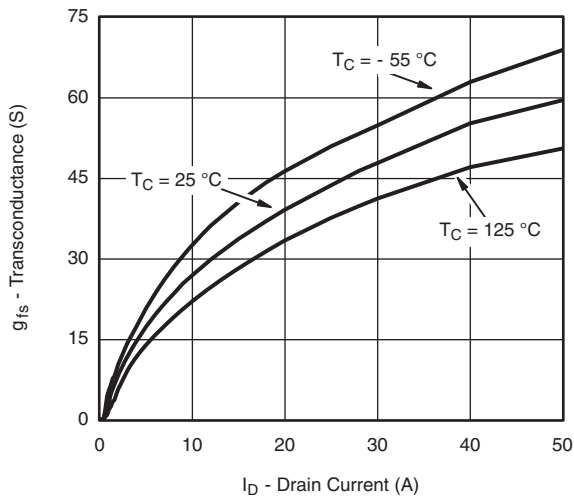
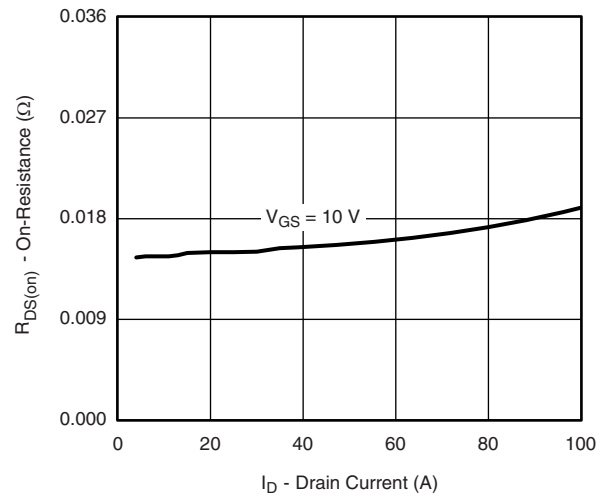
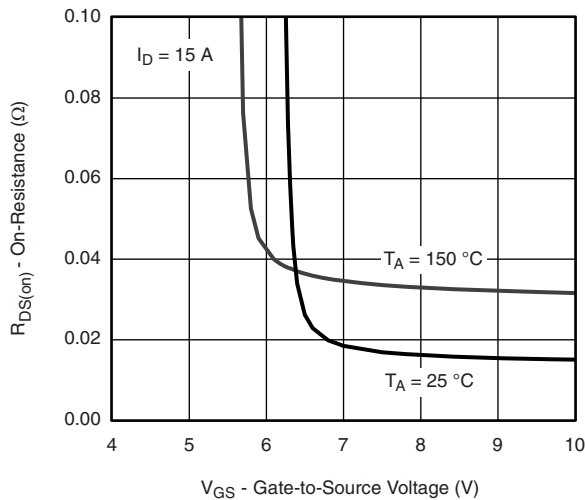
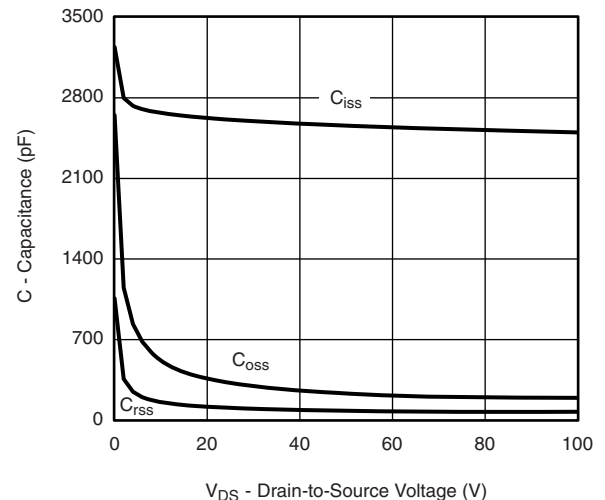


| SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted) | | | | | | |
|---|-------------------------|--|--------------------|-------|-----------|----------------------|
| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V_{DS} | $V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$ | 100 | | | V |
| V_{DS} Temperature Coefficient | $\Delta V_{DS}/T_J$ | $I_D = 250\text{ }\mu\text{A}$ | | 110 | | mV/ $^\circ\text{C}$ |
| $V_{GS(th)}$ Temperature Coefficient | $\Delta V_{GS(th)}/T_J$ | | -12.5 | | | |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$ | 2.5 | | 5 | V |
| Gate-Source Leakage | I_{GSS} | $V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$ | | | 1 | μA |
| | | $V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}, T_J = 125\text{ }^\circ\text{C}$ | | | 50 | |
| On-State Drain Current ^a | $I_{D(on)}$ | $V_{DS} \geq 5\text{ V}, V_{GS} = 10\text{ V}$ | 50 | | | A |
| Drain-Source On-State Resistance ^a | $R_{DS(on)}$ | $V_{GS} = 10\text{ V}, I_D = 15\text{ A}$ | | 0.015 | 0.0185 | Ω |
| Forward Transconductance ^a | g_{fs} | $V_{DS} = 15\text{ V}, I_D = 15\text{ A}$ | | 33 | | S |
| Dynamic^b | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = 50\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$ | | 2600 | | pF |
| Output Capacitance | C_{oss} | | 230 | | | |
| Reverse Transfer Capacitance | C_{rss} | | 80 | | | |
| Total Gate Charge | Q_g | $V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V}, I_D = 50\text{ A}$ | | 48 | 75 | nC |
| Gate-Source Charge | Q_{gs} | | 16 | | | |
| Gate-Drain Charge | Q_{gd} | | 13 | | | |
| Gate Resistance | R_g | | $f = 1\text{ MHz}$ | 1.6 | 2.5 | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = 50\text{ V}, R_L = 1\text{ }\Omega$ $I_D \cong 50\text{ A}, V_{GEN} = 10\text{ V}, R_g = 1\text{ }\Omega$ | | 12 | 20 | ns |
| Rise Time | t_r | | 10 | 20 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | 18 | 35 | | |
| Fall Time | t_f | | 8 | 15 | | |
| Drain-Source Body Diode Characteristics | | | | | | |
| Continuous Source-Drain Diode | I_S | $T_C = 25\text{ }^\circ\text{C}$ | | | 50 | A |
| Pulse Diode Forward Current ^a | I_{SM} | | | | 100 | |
| Body Diode Voltage | V_{SD} | $I_S = 15\text{ A}$ | | 0.85 | 1.5 | V |
| Body Diode Reverse Recovery Time | t_{rr} | $I_F = 50\text{ A}, di/dt = 100\text{ A}/\mu\text{s}, T_J = 25\text{ }^\circ\text{C}$ | | 80 | 120 | ns |
| Body Diode Reverse Recovery Charge | Q_{rr} | | 160 | 240 | nC | |
| Reverse Recovery Fall Time | t_a | | 57 | | ns | |
| Reverse Recovery Rise Time | t_b | | 23 | | | |

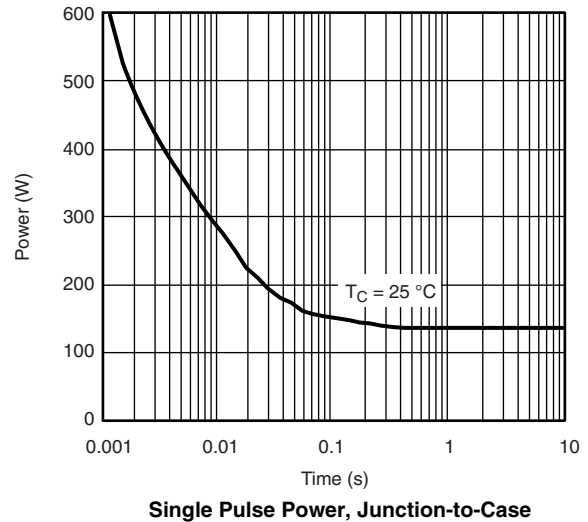
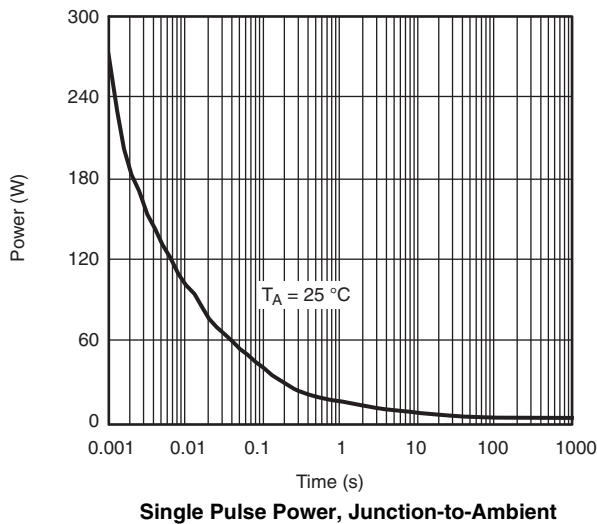
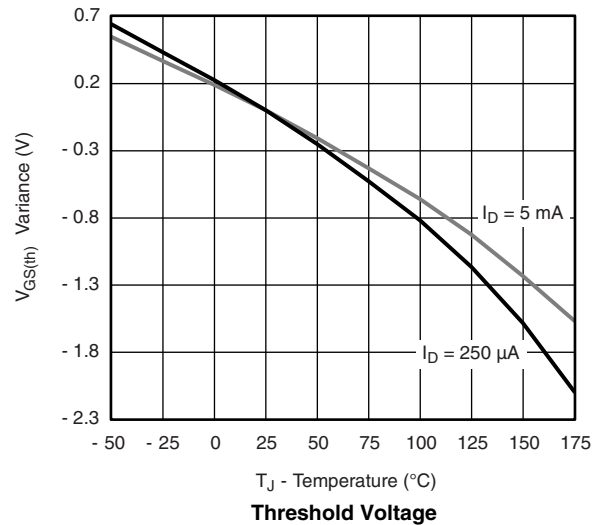
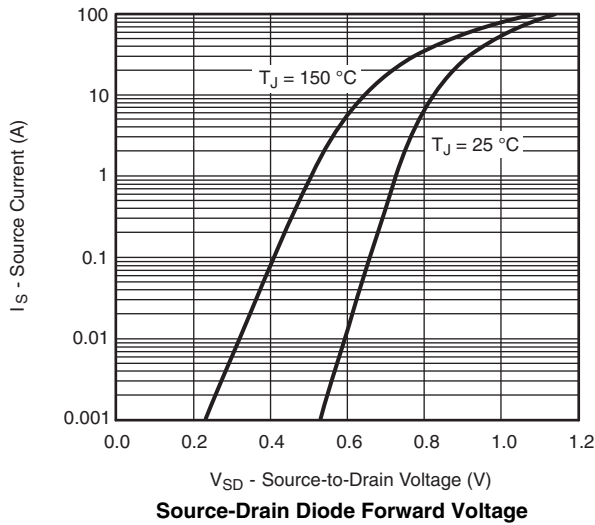
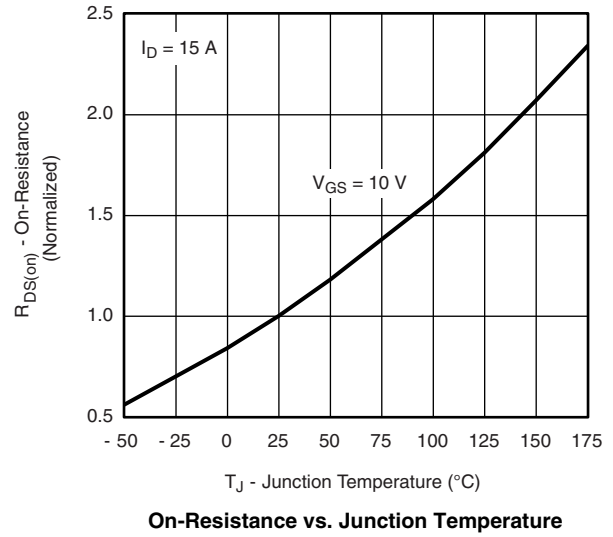
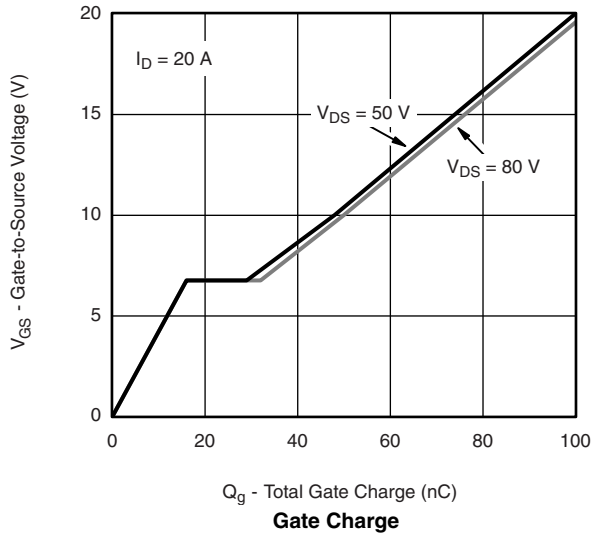
Notes:

- a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

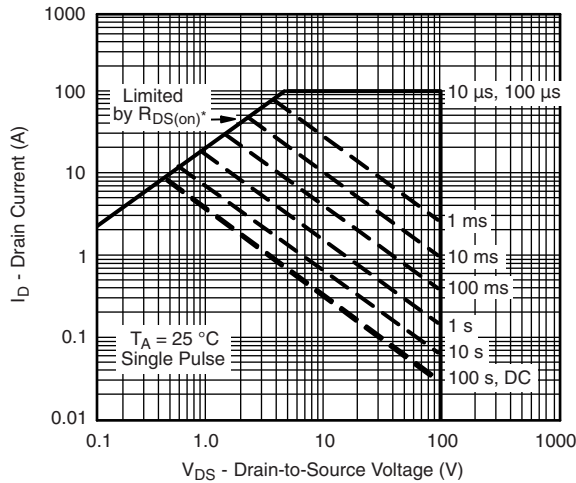
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS (25 °C, unless otherwise note)

Output Characteristics

Transfer Characteristics

Transconductance

On-Resistance vs. Drain Current

On-Resistance vs. Gate-to-Source Voltage

Capacitance

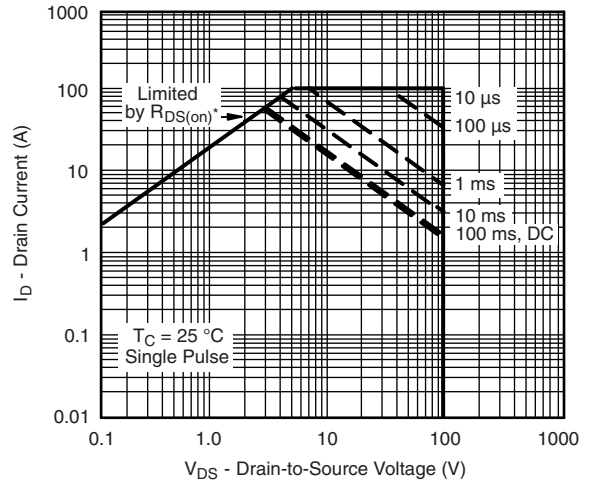
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



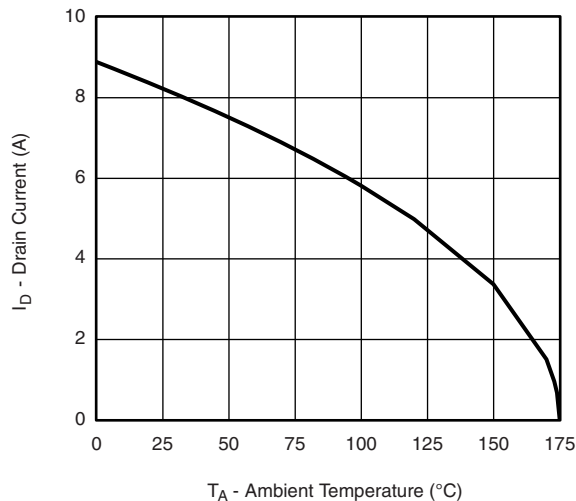
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



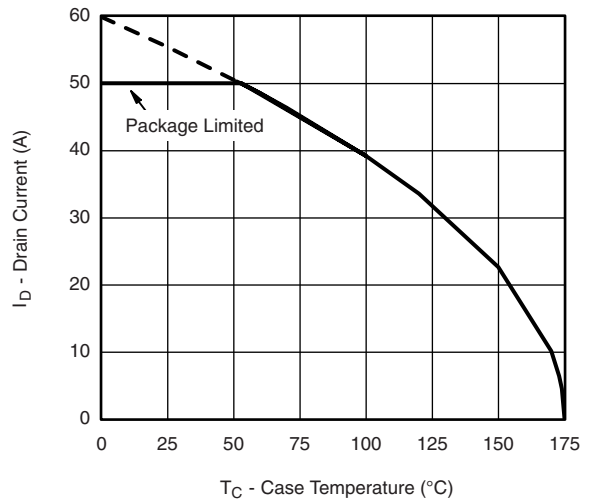
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified
Safe Operating Area, Junction-to-Ambient



* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified
Safe Operating Area, Junction-to-Case



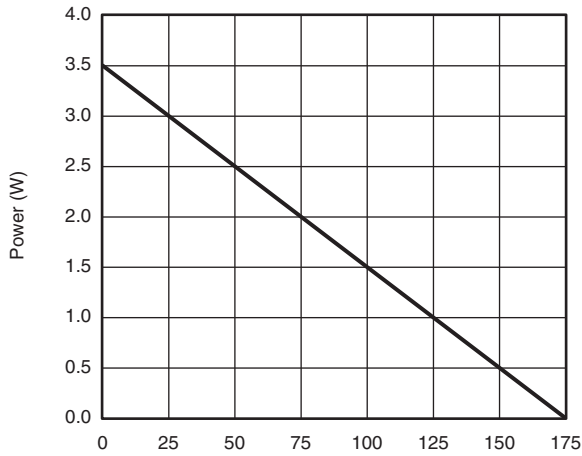
Current Derating, Junction-to-Ambient**



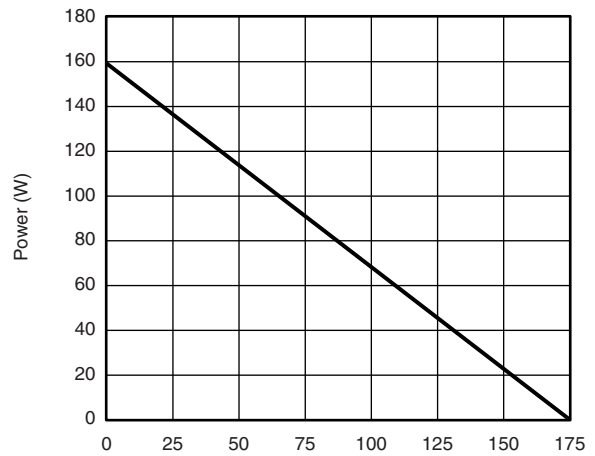
Current Derating, Junction-to-Case**

** The power dissipation P_D is based on $T_{J(max.)} = 175^\circ\text{C}$, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

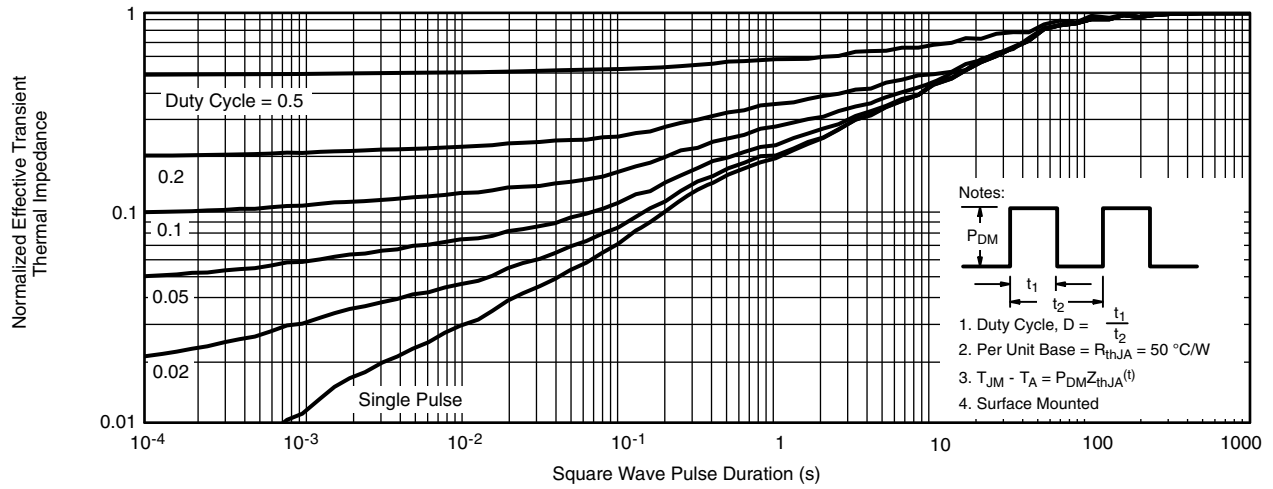
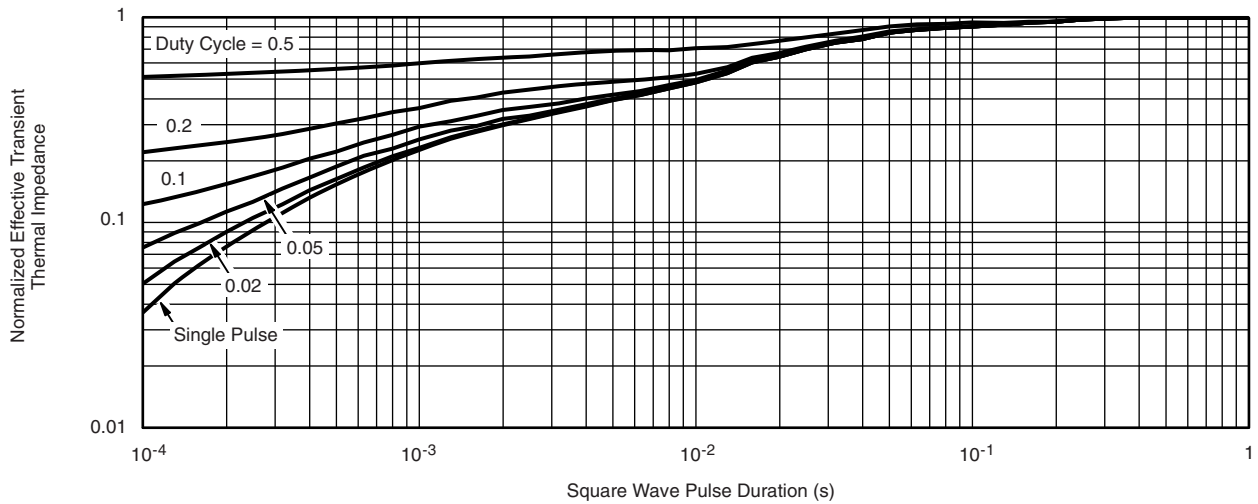


T_A - Ambient Temperature (°C)
Power Derating , Junction-to-Ambient**



T_C - Case Temperature (°C)
Power Derating , Junction-to-Case**

** The power dissipation P_D is based on T_{J(max)} = 175 °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

Normalized Thermal Transient Impedance, Junction-to-Ambient

Normalized Thermal Transient Impedance, Junction-to-Case

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