

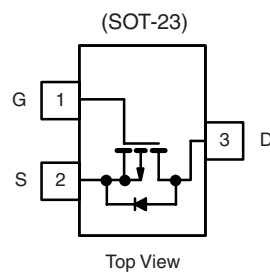
P-Channel 60-V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
- 60	0.340 at $V_{GS} = - 10$ V	- 1.25
	0.550 at $V_{GS} = - 4.5$ V	- 1



Available
RoHS*
COMPLIANT



ABSOLUTE MAXIMUM RATINGS $T_A = 25$ °C, unless otherwise noted

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	- 60	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ($T_J = 150$ °C) ^{a, b}	$T_A = 25$ °C	I_D	- 1.25	A
Pulsed Drain Current		I_{DM}	- 8	
Avalanche Current	$L = 0.1$ mH	I_{AS}	- 5	
Maximum Power Dissipation ^{a, b}	$T_A = 25$ °C	P_D	1.25	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to 150	°C

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 5$ s	R_{thJA}		100	°C/W
	Steady State		130	166	
Maximum Junction-to-Lead ^a	Steady State	R_{thJL}	45	60	

Notes:

a. Surface Mounted on FR4 Board.

b. $t \leq 5$ s.

* Pb containing terminations are not RoHS compliant, exemptions may apply.

SPECIFICATIONS $T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{DS} = 0\text{ V}$, $I_D = -250\text{ }\mu\text{A}$	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\text{ }\mu\text{A}$	-1			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -48\text{ V}$, $V_{GS} = 0\text{ V}$			-1	μA
		$V_{DS} = -48\text{ V}$, $V_{GS} = 0\text{ V}$, $T_J = 125\text{ }^{\circ}\text{C}$			-50	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq -4.5\text{ V}$, $V_{GS} = -10\text{ V}$	-6			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\text{ V}$, $I_D = -1.25\text{ A}$		0.275	0.340	Ω
		$V_{GS} = -4.5\text{ V}$, $I_D = -1\text{ A}$		0.406	0.550	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -4.5\text{ V}$, $I_D = -1\text{ A}$		1.9		S
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = -30\text{ V}$, $V_{GS} = -10\text{ V}$, $I_D = -1.25\text{ A}$		5.4	12	nC
Gate-Source Charge	Q_{gs}			1.15		
Gate-Drain Charge	Q_{gd}			0.92		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -30\text{ V}$, $R_L = 30\text{ }\Omega$ $I_D \cong -1\text{ A}$, $V_{GEN} = -4.5\text{ V}$, $R_G = 6\text{ }\Omega$		10.5	20	ns
Rise Time	t_r			11.5	20	
Turn-Off Delay Time	$t_{d(off)}$			15.5	30	
Fall Time	t_f			7.5	15	
Source-Drain Rating Characteristics ^b						
Continuous Current	I_S				-1.25	A
Pulsed Current	I_{SM}				-8	
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.25\text{ A}$, $V_{GS} = 0\text{ V}$		-0.82	-1.2	V
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.25\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$		30	55	ns

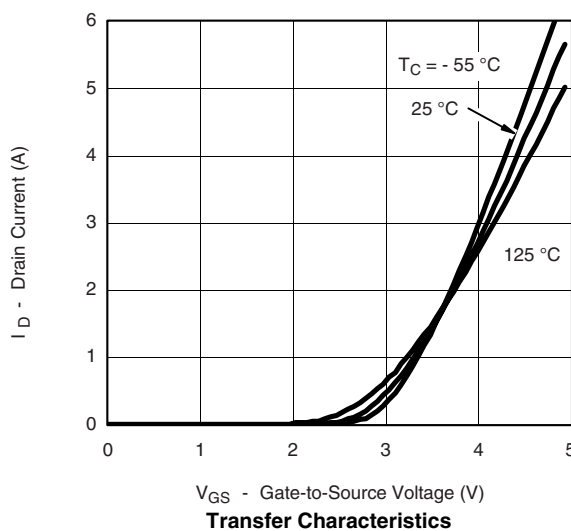
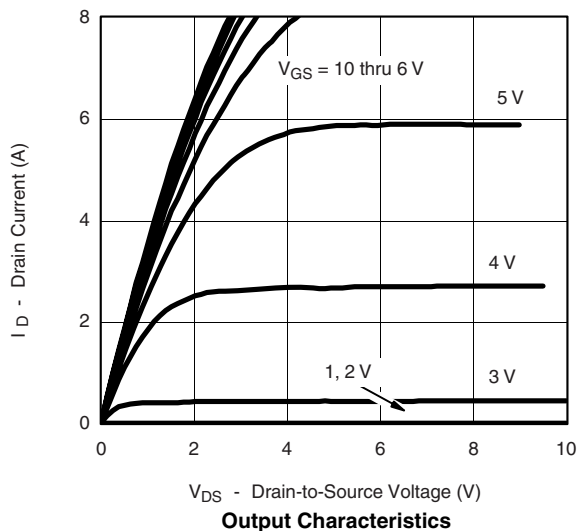
Notes:

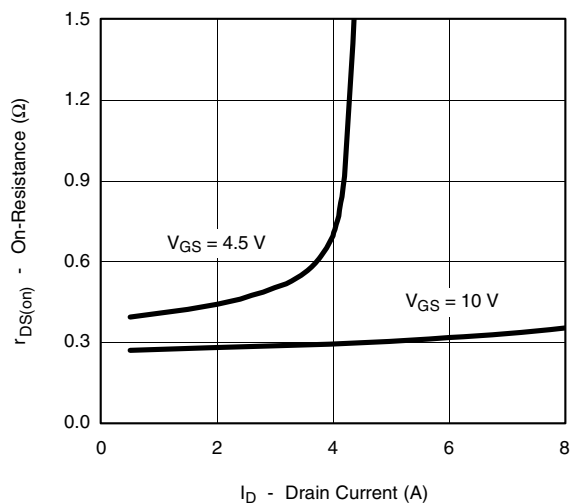
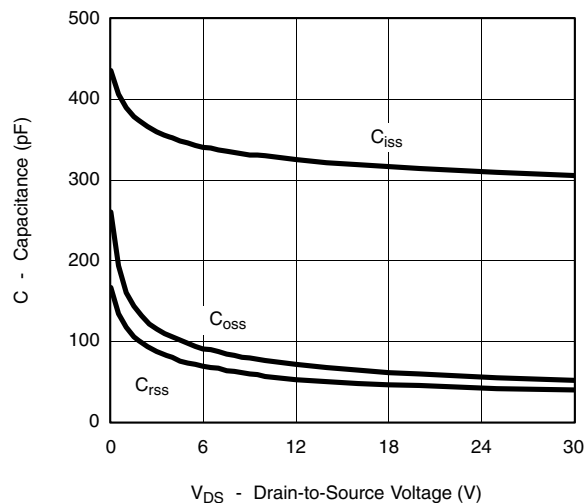
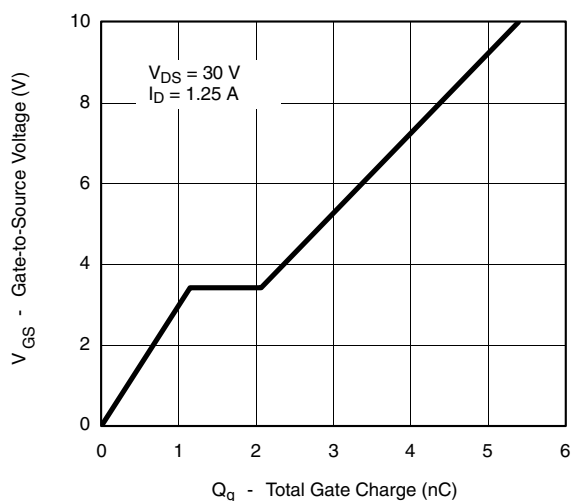
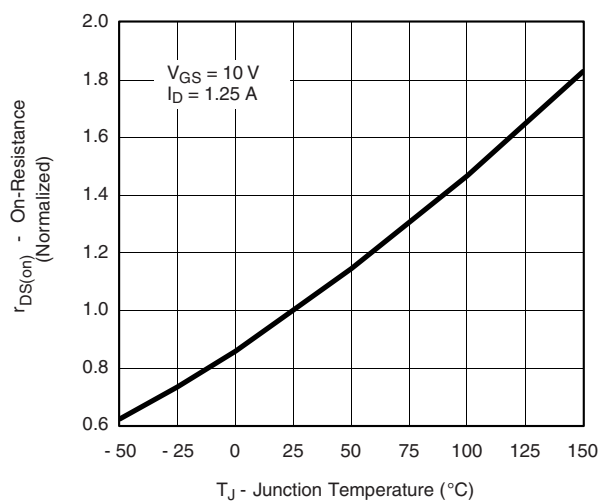
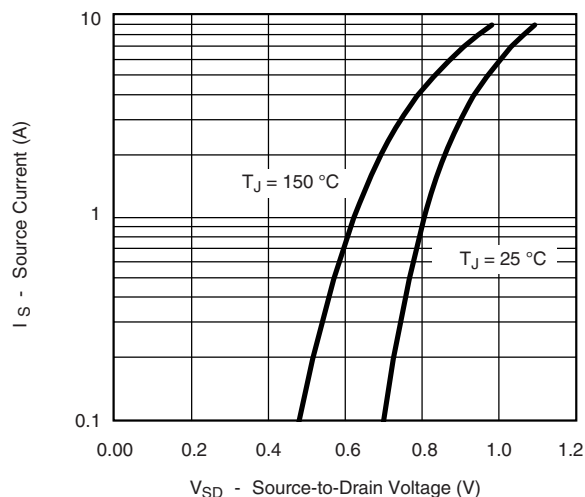
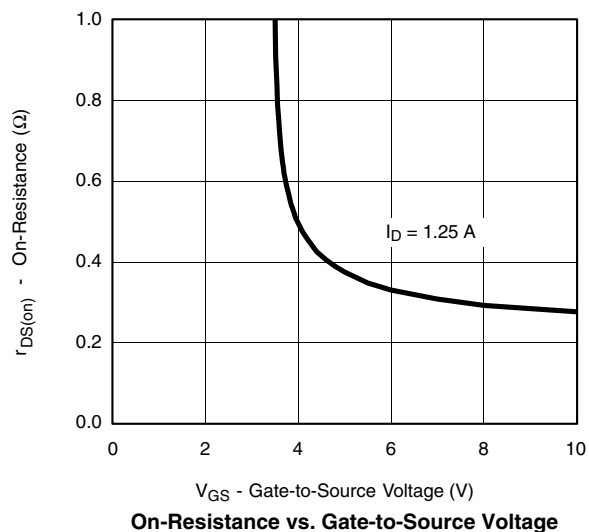
a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

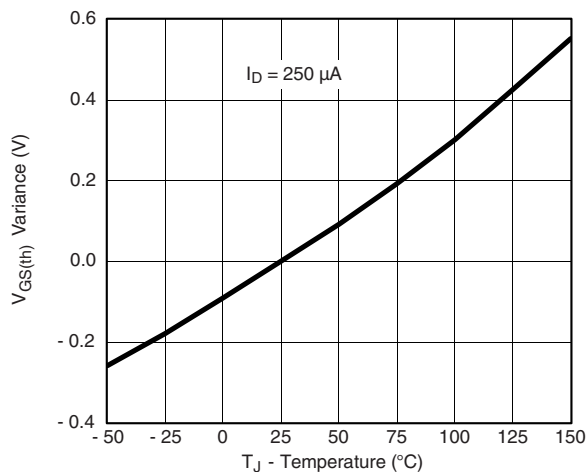
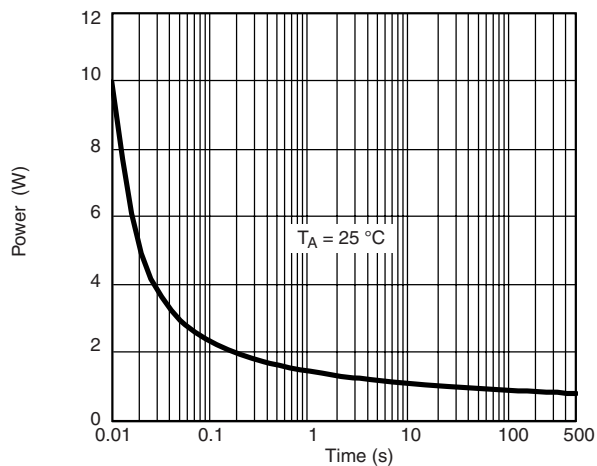
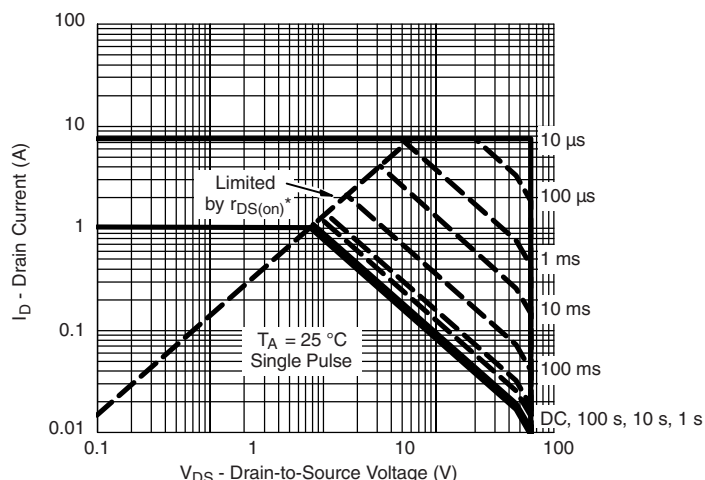
b. Guaranteed by design, not subject to production testing.

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.

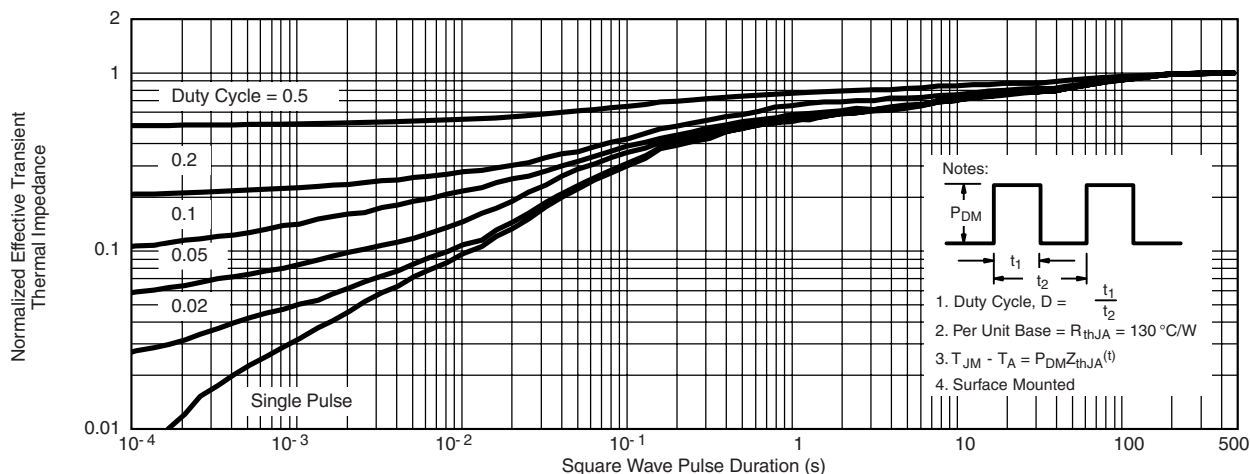
TYPICAL CHARACTERISTICS $25\text{ }^{\circ}\text{C}$, unless otherwise noted



TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

On-Resistance vs. Drain Current

Capacitance

Gate Charge

On-Resistance vs. Junction Temperature

Source-Drain Diode Forward Voltage

On-Resistance vs. Gate-to-Source Voltage

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

Threshold Voltage

Single Pulse Power


* $V_{GS} > \text{minimum } V_{GS} \text{ at which } r_{DS(on)} \text{ is specified}$

Safe Operating Area, Junction-to-Ambient


Notes:

1. Duty Cycle, $D = \frac{t_1}{t_2}$
2. Per Unit Base = $R_{thJA} = 130 \text{ °C/W}$
3. $T_{JM} - T_A = P_{DM} Z_{thJA}^{(t)}$
4. Surface Mounted

Normalized Thermal Transient Impedance, Junction-to-Ambient