P-Channel 60-V (D-S), 175 °C MOSFET, Logic Level

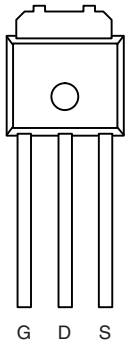
PRODUCT SUMMARY		
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)
- 60	0.170 at V_{GS} = - 10 V	- 10
	0.280 at V_{GS} = - 4.5 V	- 8

FEATURES

- TrenchFET® Power MOSFETs
- 175 °C Rated Maximum Junction Temperature

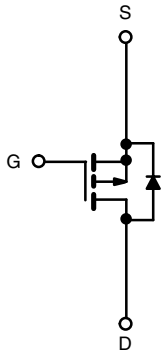
Available
RoHS* COMPLIANT

TO-251



Top View

Ordering Information: SUU10P06-280L
SUU10P06-280L-E3 (Lead (Pb)-free)



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS T_C = 25 °C, unless otherwise noted				
Parameter		**Symbol**	**Limit**	**Unit**
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current (T_J = 150 °C)	T_C = 25 °C	I_D	- 10	A
	T_C = 100 °C		- 7	
Pulsed Drain Current		I_{DM}	- 20	
Continuous Source Current (Diode Conduction)		I_S	- 10	
Avalanche Current		I_{AS}	- 10	
Single Pulse Avalanche Energy	L = 0.1 mH	E_{AS}	5	mJ
Maximum Power Dissipation	T_C = 25 °C	P_D	37	W
	T_A = 25 °C		2[a]	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to 175	°C

THERMAL RESISTANCE RATINGS					
Parameter		**Symbol**	**Typical**	**Maximum**	**Unit**
Junction-to-Ambient[a]	FR4 Board Mount	R_{thJA}	60	70	°C/W
	Free Air		120	140	
Junction-to-Case		R_{thJC}	3.7	4.0	

Notes:
a. Surface Mounted on FR4 board.

For SPICE model information via the Worldwide Web: http://www.vishay.com/www/product/spice.htm.

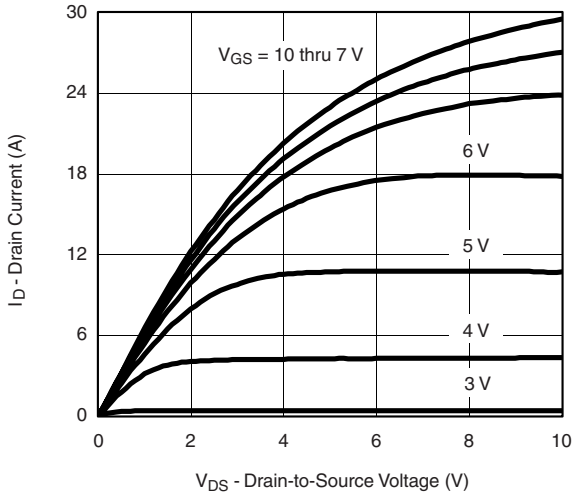
* Pb containing terminations are not RoHS compliant, exemptions may apply.

SPECIFICATIONS T_J = 25 °C, unless otherwise noted						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.[a]**	**Max.**	**Unit**
Static						
Drain-Source Breakdown Voltage	V_{DS}	V_{DS} = 0 V, I_D = - 250 µA	- 60			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250 µA	- 1.0	- 2.0	- 3.0	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = - 60 V, V_{GS} = 0 V			- 1	µA
		V_{DS} = - 60 V, V_{GS} = 0 V, T_J = 125 °C			- 50	
		V_{DS} = - 60 V, V_{GS} = 0 V, T_J = 175 °C			- 150	
On-State Drain Current[b]	$I_{D(on)}$	V_{DS} = - 5 V, V_{GS} = - 10 V	- 10			A
Drain-Source On-State Resistance[b]	$R_{DS(on)}$	V_{GS} = - 10 V, I_D = - 5 A		0.130	0.170	Ω
		V_{GS} = - 10 V, I_D = - 5 A, T_J = 125 °C			0.31	
		V_{GS} = - 10 V, I_D = - 5 A, T_J = 175 °C			0.375	
		V_{GS} = - 4.5 V, I_D = - 2 A		0.210	0.280	
Forward Transconductance[b]	g_{fs}	V_{DS} = - 15 V, I_D = - 5 A		6		S
Dynamic						
Input Capacitance	C_{iss}	V_{DS} = - 25 V, V_{GS} = 0 V, f = 1 MHz		635		pF
Output Capacitance	C_{oss}			100		
Reverse Transfer Capacitance	C_{rss}			30		
Total Gate Charge	Q_g	V_{DS} = - 30 V, V_{GS} = - 10 V, I_D = - 10 A		11.5	25	nC
Gate-Source Charge	Q_{gs}			3.5		
Gate-Drain Charge	Q_{gd}			2		
Turn-On Delay Time[c]	$t_{d(on)}$	V_{DD} = - 30 V, R_L = 3 Ω I_D ≅ 10 A, V_{GEN} = - 10 V, R_G = 2.5 Ω		9	20	ns
Rise Time[c]	t_r			16	20	
Turn-Off Delay Time[c]	$t_{d(off)}$			17	30	
Fall Time[c]	t_f			19	35	
Source-Drain Diode Ratings and Characteristics T_C = 25 °C[a]						
Pulsed Current	I_{SM}				- 20	A
Forward Voltage[b]	V_{SD}	I_F = 10 A, V_{GS} = 0 V			- 1.3	V
Reverse Recovery Time	t_{rr}	I_F = 10 A, dI/dt = 100 A/µs		50	80	ns

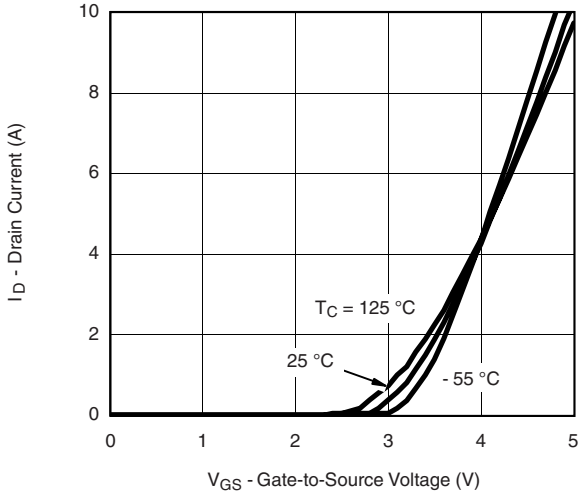
Notes:
a. Guaranteed by design, not subject to production testing.
b. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.
c. Independent of operating temperature.

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.

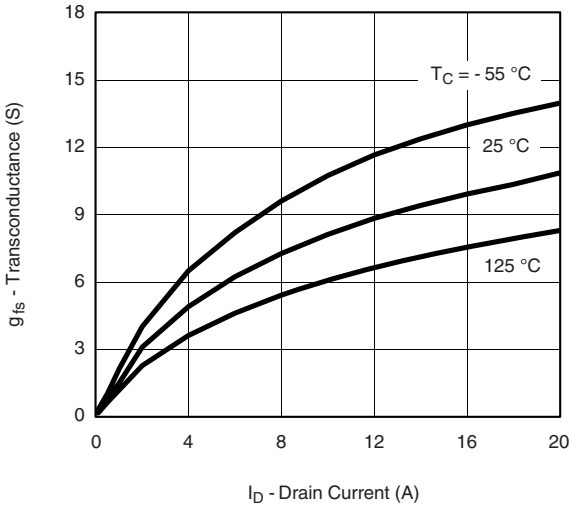
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



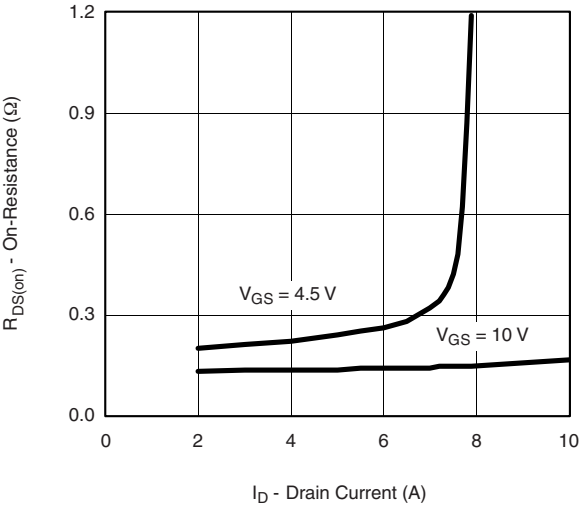
Output Characteristics



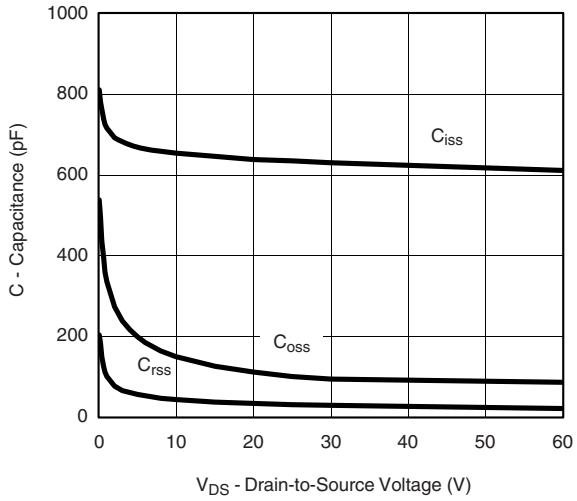
Transfer Characteristics



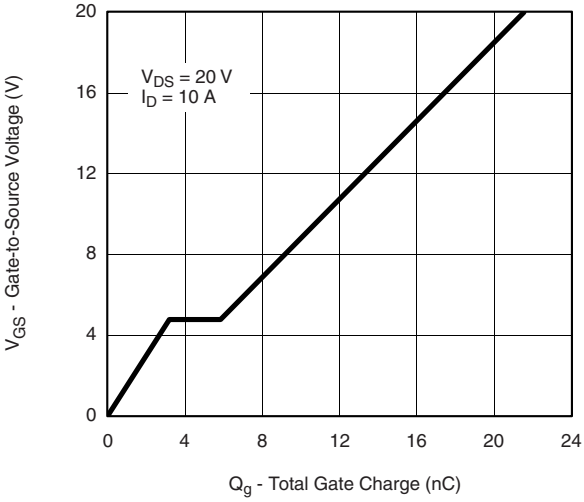
Transconductance



On-Resistance vs. Drain Current

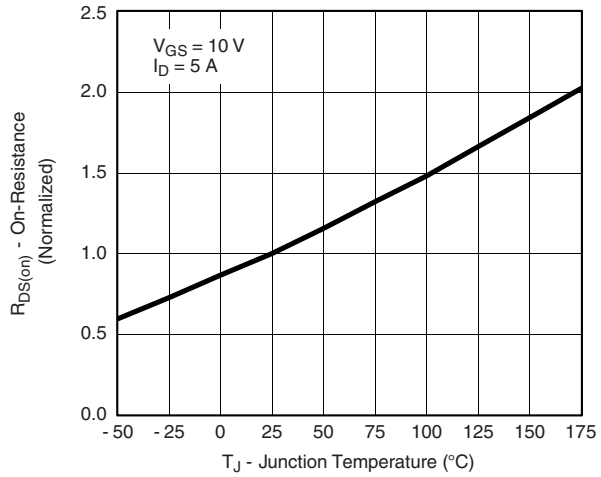


Capacitance

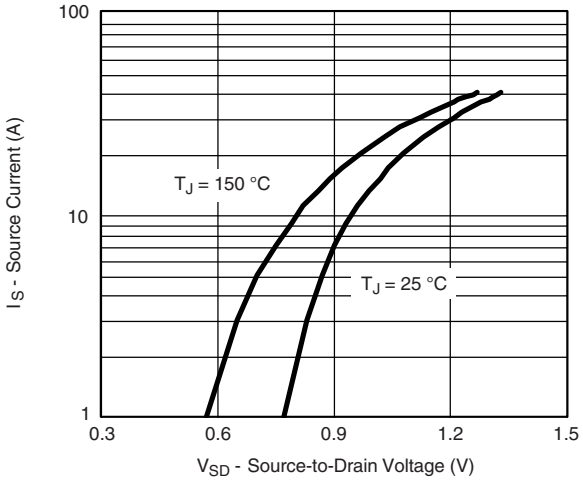


Gate Charge

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

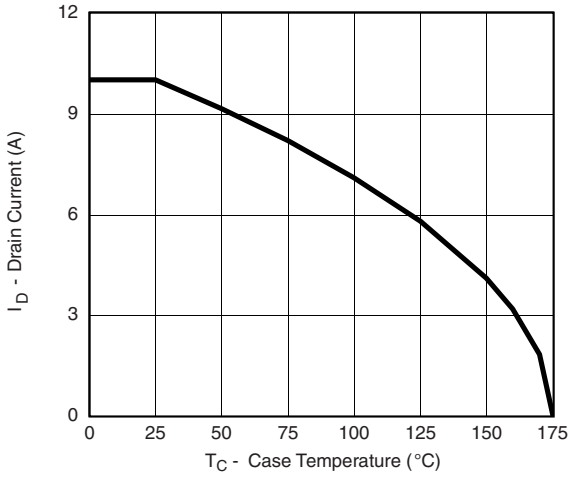


On-Resistance vs. Junction Temperature

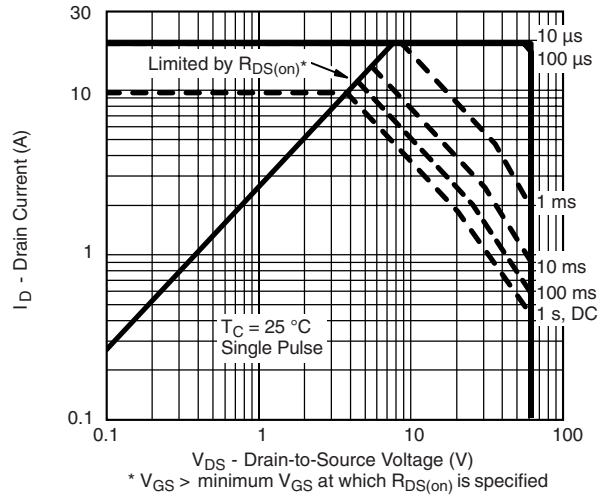


Source-Drain Diode Forward Voltage

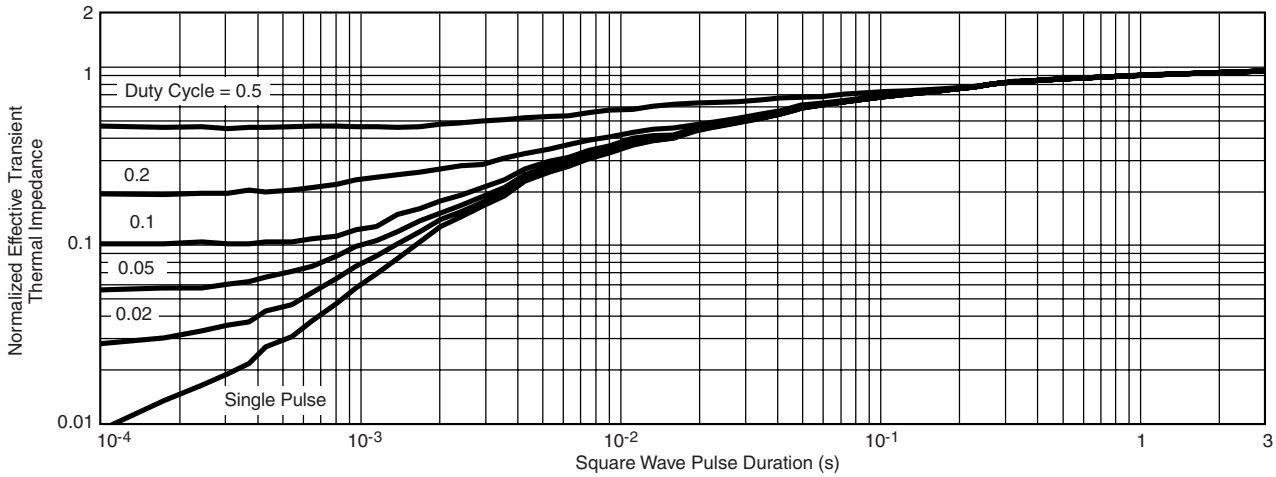
THERMAL RATINGS



Drain Current vs. Case Temperature



Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Case

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