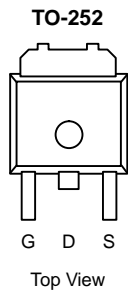




P-Channel 60-V (D-S), 175°C MOSFET, Logic Level

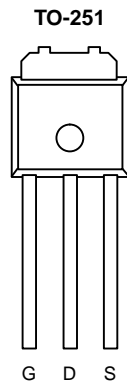
PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
-60	0.170 @ V <sub>GS</sub> = -10 V	-10
	0.280 @ V <sub>GS</sub> = -4.5 V	-8

**175°C Rated**  
Maximum Junction Temperature  
**TrenchFET®**  
Power MOSFETS



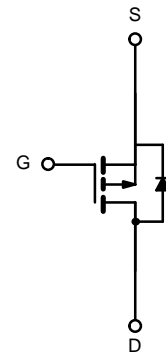
Order Number:  
SUD10P06-280L

Drain Connected to Tab



Order Number:  
SUU10P06-280L

and DRAIN-TAB



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T <sub>C</sub> = 25°C UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Gate-Source Voltage		V <sub>GS</sub>	±20	V
Continuous Drain Current (T <sub>J</sub> = 150°C)	T <sub>C</sub> = 25°C	I <sub>D</sub>	-10	A
	T <sub>C</sub> = 100°C		-7	
Pulsed Drain Current		I <sub>DM</sub>	-20	
Continuous Source Current (Diode Conduction)		I <sub>S</sub>	-10	
Avalanche Current		I <sub>AR</sub>	-10	
Repetitive Avalanche Energy (Duty Cycle ≤ 1%)	L = 0.1 mH	E <sub>AR</sub>	5	mJ
Maximum Power Dissipation	T <sub>C</sub> = 25°C	P <sub>D</sub>	37	W
	T <sub>A</sub> = 25°C		2 <sup>a</sup>	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 175	°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient <sup>a</sup>	FR4 Board Mount	R <sub>thJA</sub>	60	70	°C/W
	Free Air		120	140	
Junction-to-Case		R <sub>thJC</sub>	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>

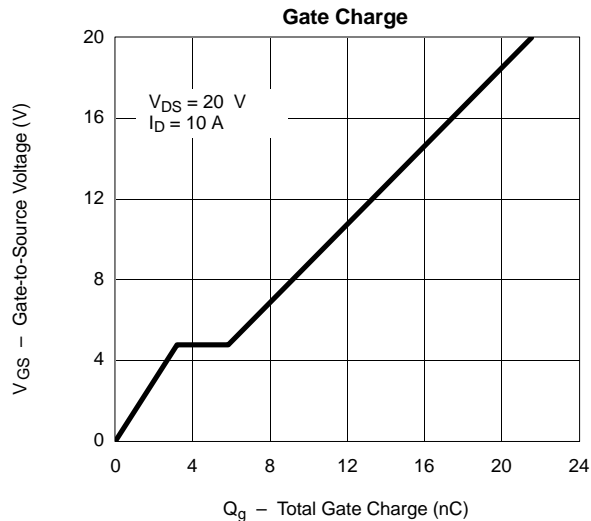
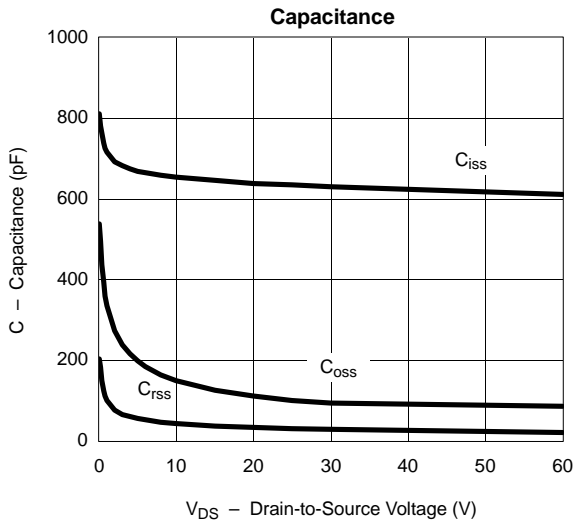
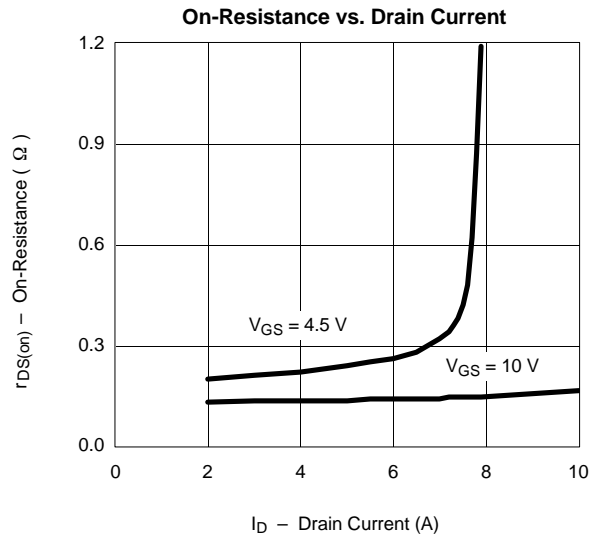
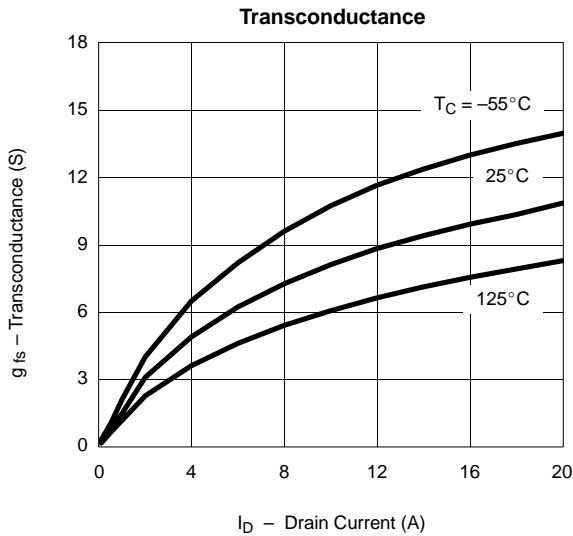
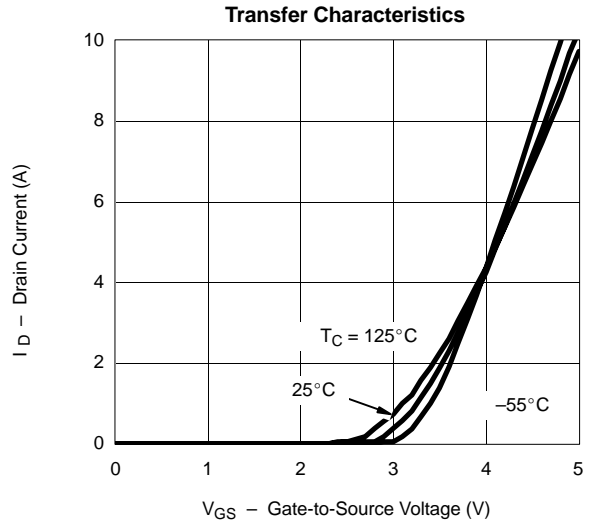
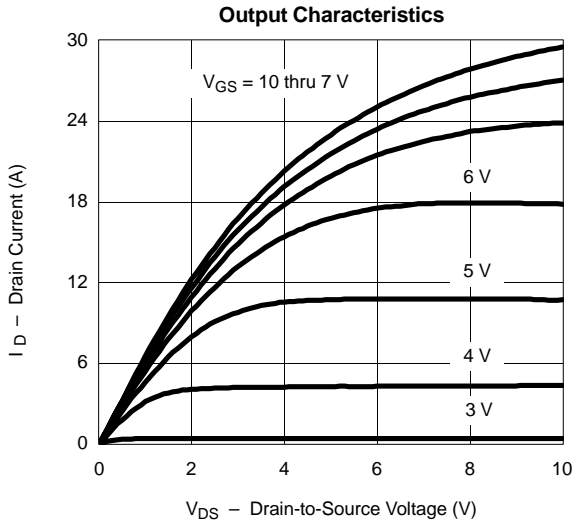
<b>SPECIFICATIONS (T<sub>J</sub> = 25°C UNLESS OTHERWISE NOTED)</b>						
Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>DS</sub> = 0 V, I <sub>D</sub> = -250 μA	-60			V
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-1.0	-2.0	-3.0	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -60 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -60 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 125°C			-50	
		V <sub>DS</sub> = -60 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 175°C			-150	
On-State Drain Current <sup>b</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -10 V	-10			A
Drain-Source On-State Resistance <sup>b</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -5 A		0.130	0.170	Ω
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -5 A, T <sub>J</sub> = 125°C			0.31	
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -5 A, T <sub>J</sub> = 175°C			0.375	
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -2 A		0.210	0.280	
Forward Transconductance <sup>b</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -15 V, I <sub>D</sub> = -5 A		6		S
<b>Dynamic</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -25 V, V <sub>GS</sub> = 0 V, f = 1 MHz		635		pF
Output Capacitance	C <sub>oss</sub>			100		
Reverse Transfer Capacitance	C <sub>rss</sub>			30		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -30 V, V <sub>GS</sub> = -10 V, I <sub>D</sub> = -10 A		11.5	25	nC
Gate-Source Charge	Q <sub>gs</sub>			3.5		
Gate-Drain Charge	Q <sub>gd</sub>			2		
Turn-On Delay Time <sup>c</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = -30 V, R <sub>L</sub> = 3 Ω I <sub>D</sub> = 10 A, V <sub>GEN</sub> = -10 V, R <sub>G</sub> = 2.5 Ω		9	20	ns
Rise Time <sup>c</sup>	t <sub>r</sub>			16	20	
Turn-Off Delay Time <sup>c</sup>	t <sub>d(off)</sub>			17	30	
Fall Time <sup>c</sup>	t <sub>f</sub>			19	35	
<b>Source-Drain Diode Ratings and Characteristics (T<sub>C</sub> = 25°C)<sup>a</sup></b>						
Pulsed Current	I <sub>SM</sub>				-20	A
Forward Voltage <sup>b</sup>	V <sub>SD</sub>	I <sub>F</sub> = 10 A, V <sub>GS</sub> = 0 V			-1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 10 A, di/dt = 100 A/μs		50	80	ns

## Notes:

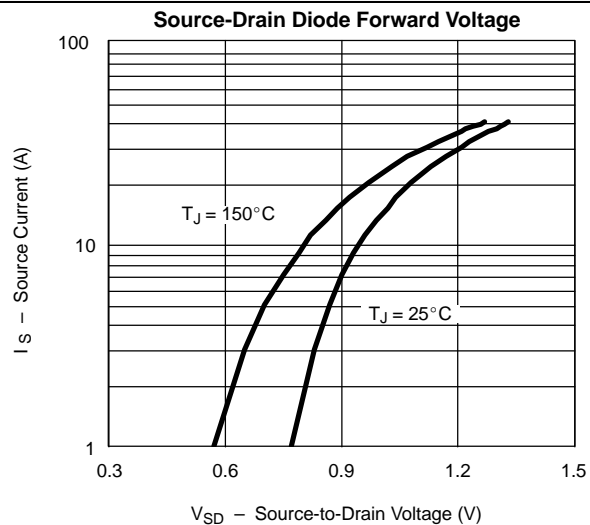
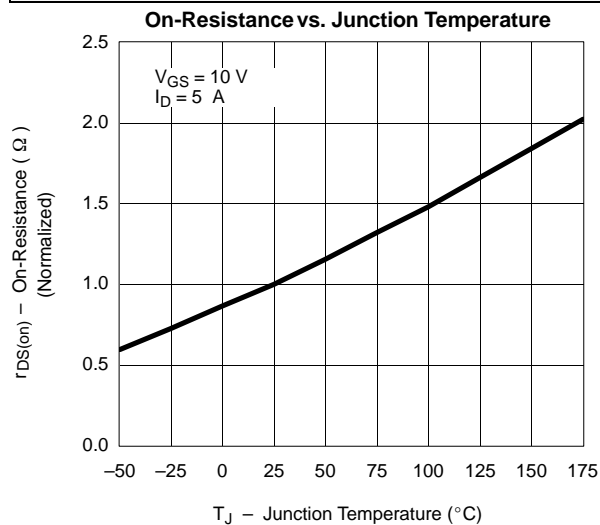
- Guaranteed by design, not subject to production testing.
- Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- Independent of operating temperature.



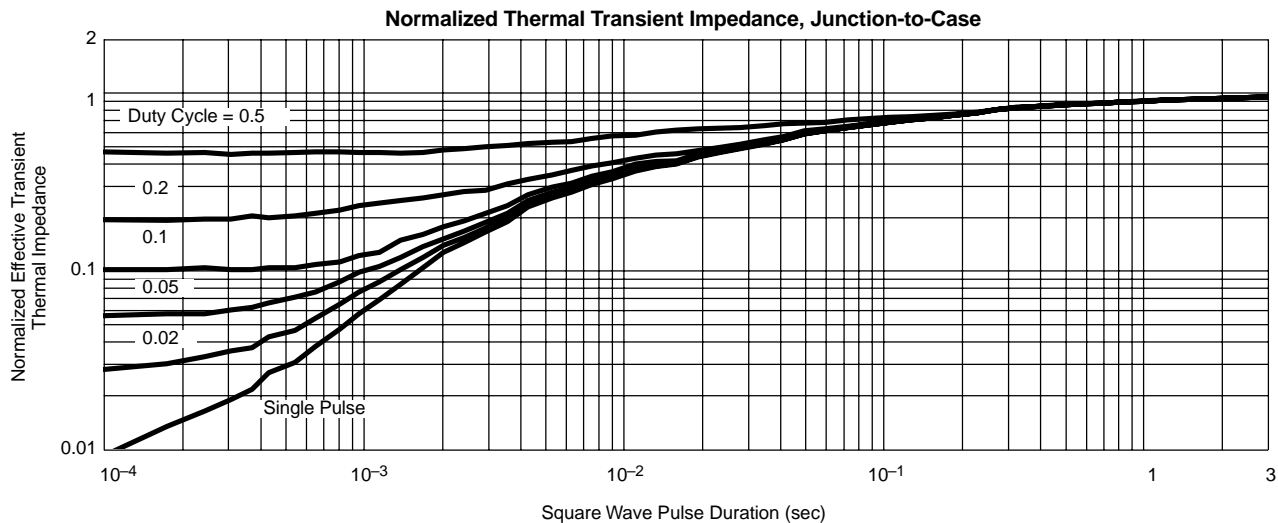
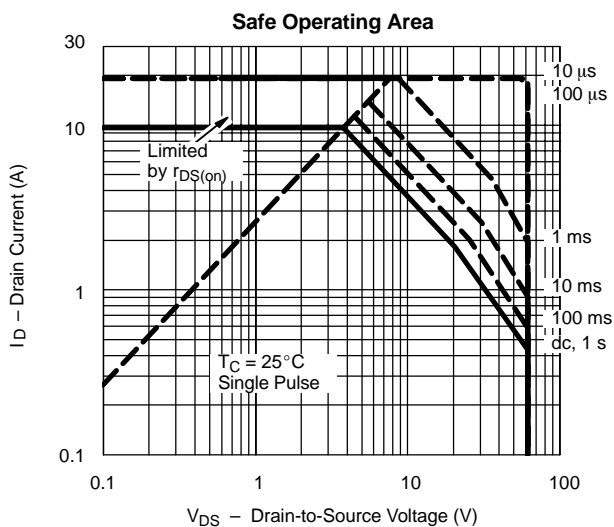
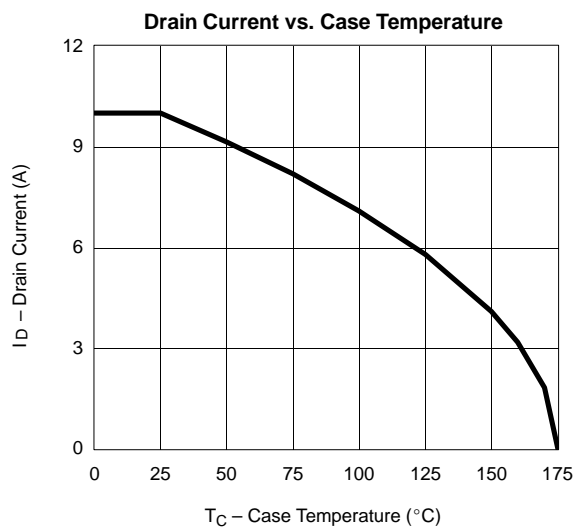
**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



**THERMAL RATINGS**



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