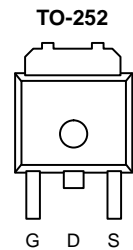




## P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A) <sup>a</sup>
-30	0.015 @ $V_{GS} = -10$ V	-15
	0.024 @ $V_{GS} = -4.5$ V	-12

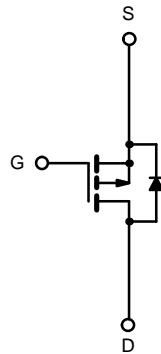
**TrenchFET<sup>®</sup>**  
Power MOSFETS



Top View

Order Number:  
SUD45P03-15A

Drain Connected to Tab



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>b</sup>	$I_D$	$T_A = 25^\circ\text{C}$	-15
		$T_A = 100^\circ\text{C}$	-10
Pulsed Drain Current	$I_{DM}$	-100	A
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	-15	
Maximum Power Dissipation	$P_D$	$T_C = 25^\circ\text{C}$	70 <sup>c</sup>
		$T_A = 25^\circ\text{C}$	7 <sup>b</sup>
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient <sup>b</sup>	$R_{thJA}$	$t \leq 10$ sec	14	18	$^\circ\text{C/W}$
		Steady State	40	50	
Junction-to-Case	$R_{thJC}$	1.5	1.8		

Notes

- a. Surface Mounted on 1" x 1" FR4 Board.
- b. See SOA curve for voltage derating.



SPECIFICATIONS (T <sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)						
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>GS</sub> = 0 V, I <sub>D</sub> = -250 μA	-30			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			
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> = -30 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 125 °C			-50	
On-State Drain Current <sup>b</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -10 V	-50			A
		V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -4.5 V	-20			
Drain-Source On-State Resistance <sup>b</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -15 A		0.012	0.015	Ω
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -15 A, T <sub>J</sub> = 125 °C		0.018	0.026	
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -12 A		0.020	0.024	
Forward Transconductance <sup>b</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -15 V, I <sub>D</sub> = -15 A	20			S
<b>Dynamic<sup>a</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = -25 V, f = 1 MHz		3600		pF
Output Capacitance	C <sub>oss</sub>			600		
Reverse Transfer Capacitance	C <sub>rss</sub>			340		
Total Gate Charge <sup>c</sup>	Q <sub>g</sub>	V <sub>DS</sub> = -15 V, V <sub>GS</sub> = -10 V, I <sub>D</sub> = -45 A		60	125	nC
Gate-Source Charge <sup>c</sup>	Q <sub>gs</sub>			14		
Gate-Drain Charge <sup>c</sup>	Q <sub>gd</sub>			12		
Turn-On Delay Time <sup>c</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = -15 V, R <sub>L</sub> = 0.33 Ω I <sub>D</sub> ≅ -45 A, V <sub>GEN</sub> = -10 V, R <sub>G</sub> = 2.4 Ω		13	20	ns
Rise Time <sup>c</sup>	t <sub>r</sub>			370	520	
Turn-Off Delay Time <sup>c</sup>	t <sub>d(off)</sub>			50	100	
Fall Time <sup>c</sup>	t <sub>f</sub>			75	120	
<b>Source-Drain Diode Ratings and Characteristic (T<sub>C</sub> = 25 °C)</b>						
Pulsed Current	I <sub>SM</sub>				100	A
Diode Forward Voltage <sup>b</sup>	V <sub>SD</sub>	I <sub>F</sub> = -45 A, V <sub>GS</sub> = 0 V		1.2	1.5	V
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -45 A, di/dt = 100 A/μs		55	100	ns

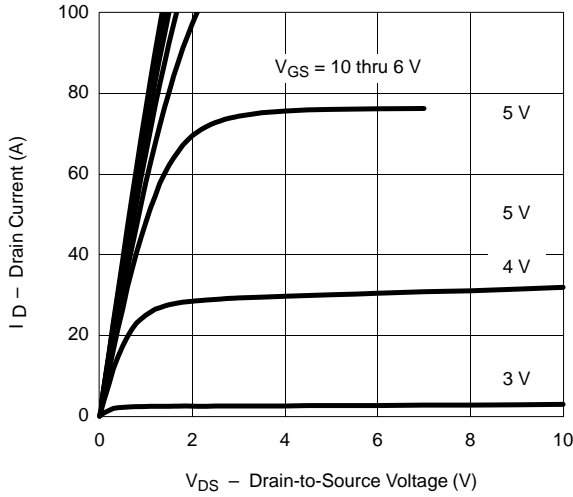
## Notes

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

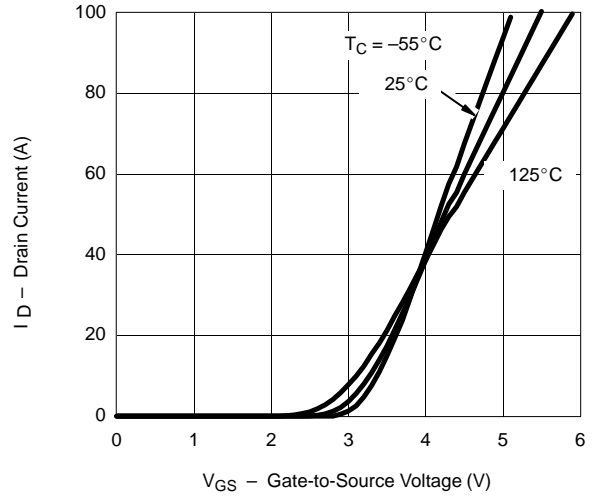


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

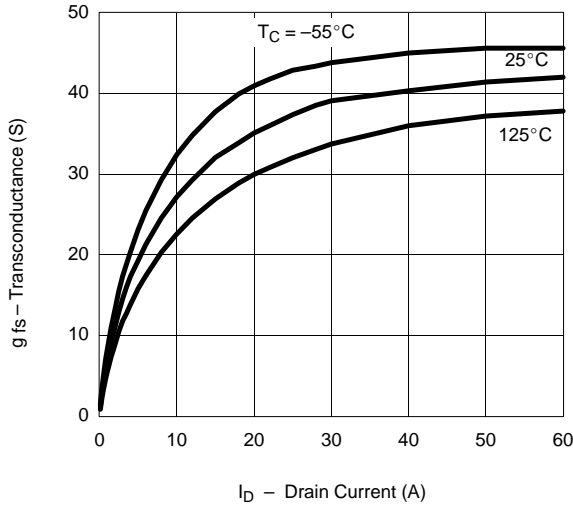
**Output Characteristics**



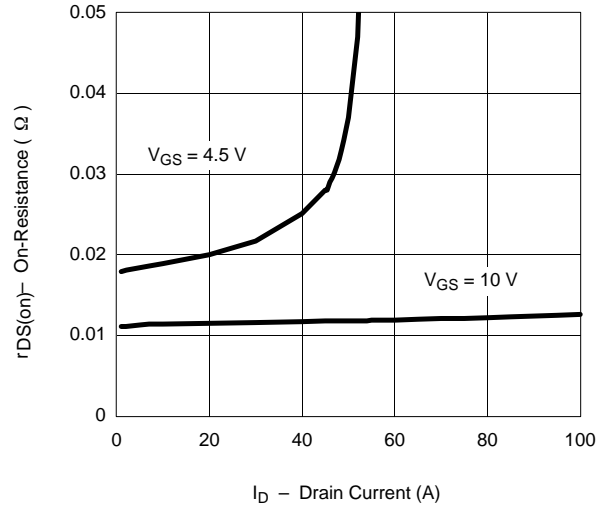
**Transfer Characteristics**



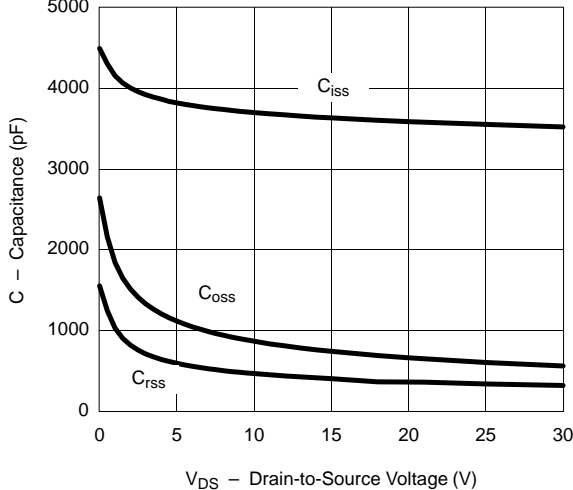
**Transconductance**



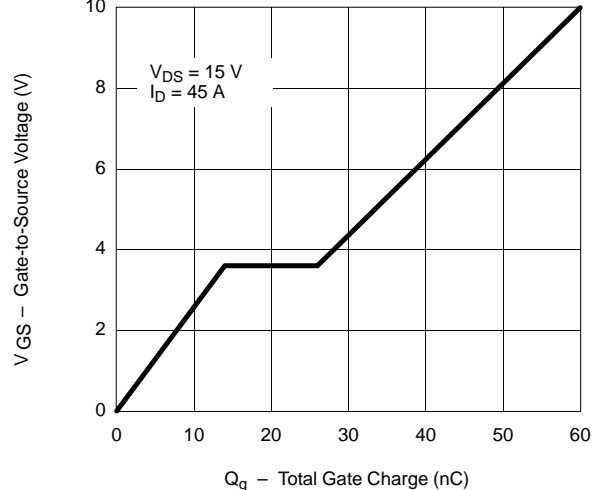
**On-Resistance vs. Drain Current**



**Capacitance**

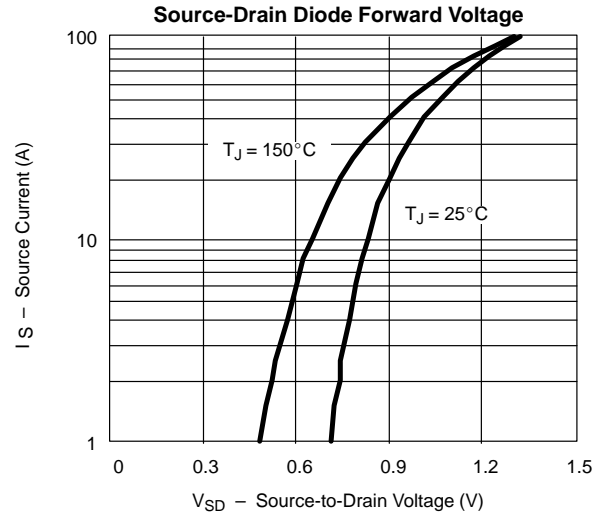
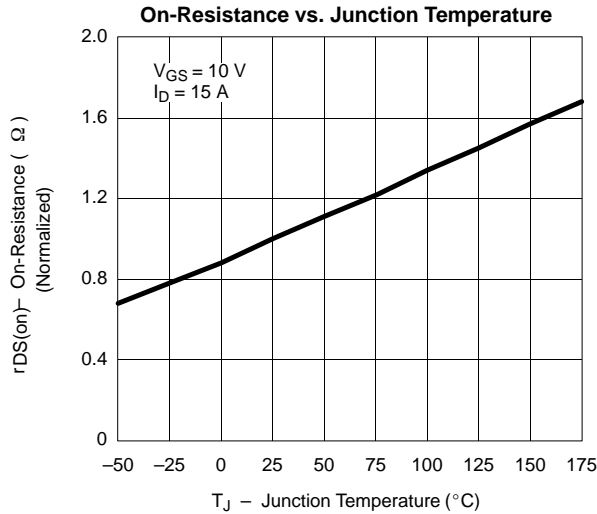


**Gate Charge**





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



#### THERMAL RATINGS

