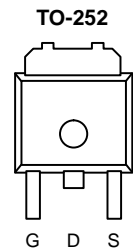




P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A) ^a
-30	0.015 @ $V_{GS} = -10$ V	-15
	0.024 @ $V_{GS} = -4.5$ V	-12

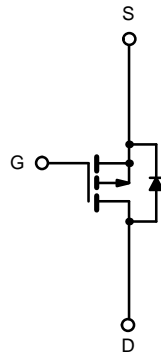
TrenchFET[®]
Power MOSFETS



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}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^b	$T_A = 25^\circ\text{C}$	I_D	-15	A
	$T_A = 100^\circ\text{C}$		-10	
Pulsed Drain Current		I_{DM}	-100	
Continuous Source Current (Diode Conduction) ^a		I_S	-15	
Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	70 ^c	W
	$T_A = 25^\circ\text{C}$		7 ^b	
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 ^b	$t \leq 10$ sec	R_{thJA}	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 _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = -250 μA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-1.0			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = -20 V			-100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -30 V, V _{GS} = 0 V, T _J = 125 °C			-50	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -10 V	-50			A
		V _{DS} = -5 V, V _{GS} = -4.5 V	-20			
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = -10 V, I _D = -15 A		0.012	0.015	Ω
		V _{GS} = -10 V, I _D = -15 A, T _J = 125 °C		0.018	0.026	
		V _{GS} = -4.5 V, I _D = -12 A		0.020	0.024	
Forward Transconductance ^b	g _{fs}	V _{DS} = -15 V, I _D = -15 A	20			S
Dynamic^a						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = -25 V, f = 1 MHz		3600		pF
Output Capacitance	C _{oss}			600		
Reverse Transfer Capacitance	C _{rss}			340		
Total Gate Charge ^c	Q _g	V _{DS} = -15 V, V _{GS} = -10 V, I _D = -45 A		60	125	nC
Gate-Source Charge ^c	Q _{gs}			14		
Gate-Drain Charge ^c	Q _{gd}			12		
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = -15 V, R _L = 0.33 Ω I _D ≅ -45 A, V _{GEN} = -10 V, R _G = 2.4 Ω		13	20	ns
Rise Time ^c	t _r			370	520	
Turn-Off Delay Time ^c	t _{d(off)}			50	100	
Fall Time ^c	t _f			75	120	
Source-Drain Diode Ratings and Characteristic (T_C = 25 °C)						
Pulsed Current	I _{SM}				100	A
Diode Forward Voltage ^b	V _{SD}	I _F = -45 A, V _{GS} = 0 V		1.2	1.5	V
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -45 A, di/dt = 100 A/μs		55	100	ns

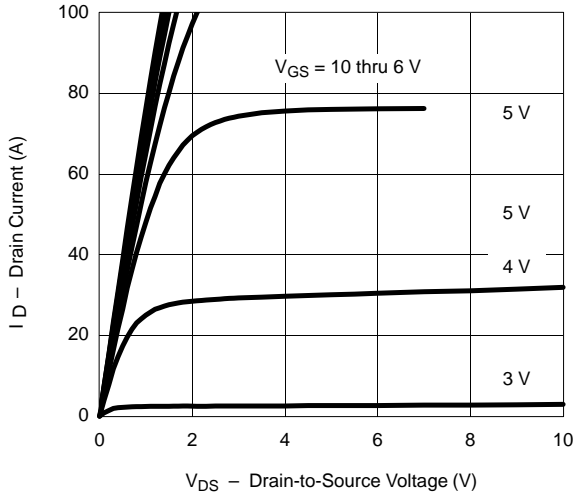
Notes

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

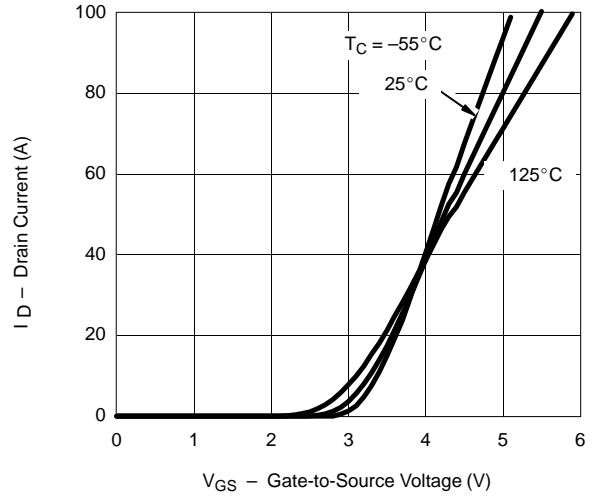


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

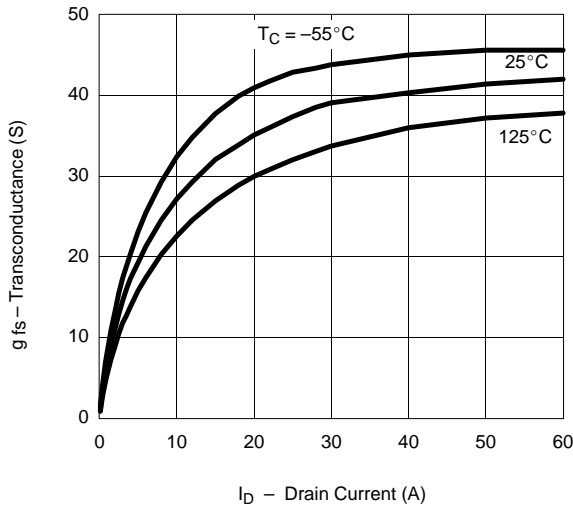
Output Characteristics



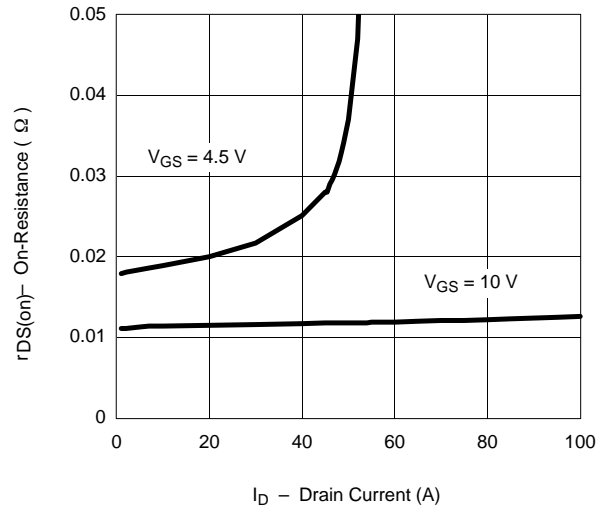
Transfer Characteristics



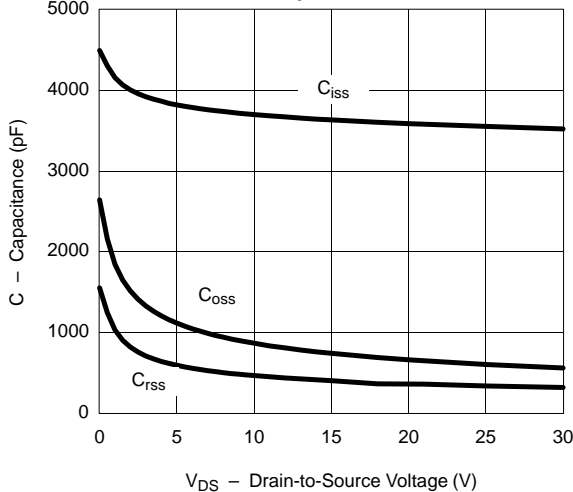
Transconductance



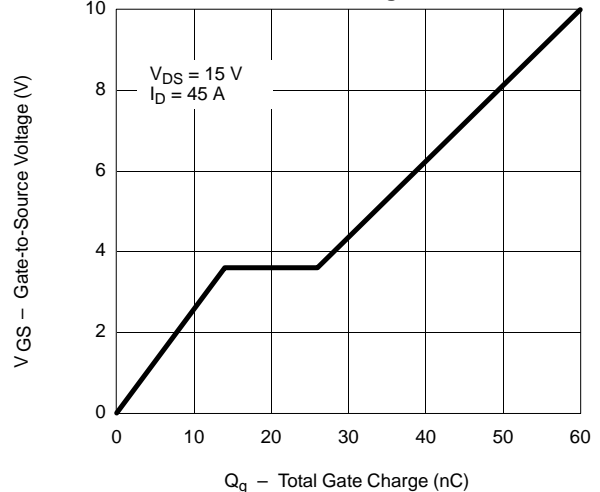
On-Resistance vs. Drain Current



Capacitance

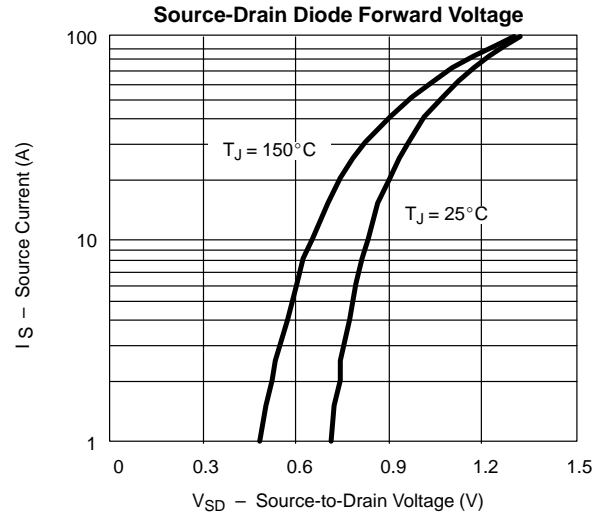
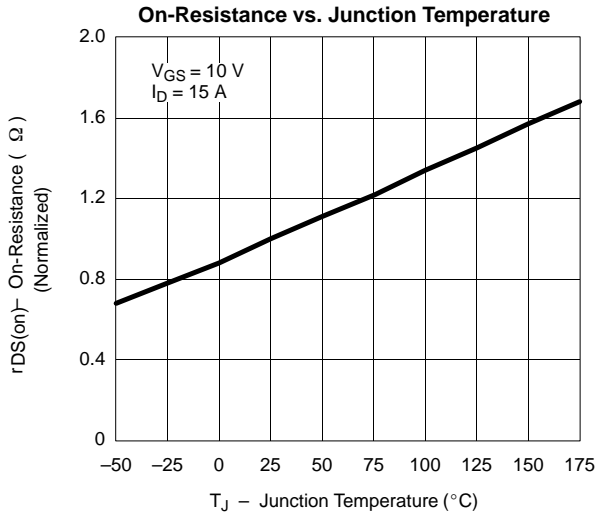


Gate Charge





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



THERMAL RATINGS

