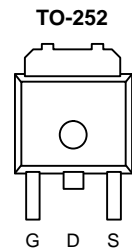




P-Channel 30-V (D-S), 150°C MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A) ^a
-30	0.010 @ $V_{GS} = -10$ V	-15
	0.018 @ $V_{GS} = -4.5$ V	-12

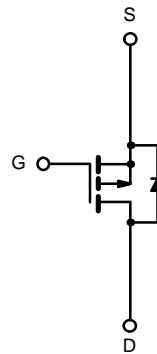
TrenchFET[®]
Power MOSFETs



Top View

Order Number:
SUD45P03-10

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 ^b	I_D	$T_A = 25^\circ\text{C}$	-15
		$T_A = 100^\circ\text{C}$	-8
Pulsed Drain Current	I_{DM}	-100	A
Continuous Source Current (Diode Conduction)	I_S	-15	
Maximum Power Dissipation ^b	P_D	$T_C = 25^\circ\text{C}$	70
		$T_A = 25^\circ\text{C}$	4 ^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
Maximum Junction-to-Ambient ^b	R_{thJA}		30	$^\circ\text{C/W}$
Maximum Junction-to-Case	R_{thJC}		1.8	

Notes

- a. Calculated Rating for $T_A = 25^\circ\text{C}$, for comparison purposes only. This cannot be used as continuous rating (see Absolute Maximum Ratings and Typical Characteristics).
- b. Surface Mounted on FR4 Board, $t \leq 10$ sec.



SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	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 ^a	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 ^a	r _{DS(on)}	V _{GS} = -10 V, I _D = -15 A			0.010	Ω
		V _{GS} = -10 V, I _D = -15 A, T _J = 125 °C			0.015	
		V _{GS} = -4.5 V, I _D = -15 A			0.018	
Forward Transconductance ^a	g _{fs}	V _{DS} = -15 V, I _D = -15 A	20			S
Dynamic^b						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = -25 V, f = 1 MHz		6000		pF
Output Capacitance	C _{oss}			1100		
Reverse Transfer Capacitance	C _{rss}			700		
Total Gate Charge ^c	Q _g	V _{DS} = -15 V, V _{GS} = -10 V, I _D = -45 A		90	150	nC
Gate-Source Charge ^c	Q _{gs}			20		
Gate-Drain Charge ^c	Q _{gd}			16		
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		15	25	ns
Rise Time ^c	t _r			375	550	
Turn-Off Delay Time ^c	t _{d(off)}			100	200	
Fall Time ^c	t _f			140	250	
Source-Drain Diode Ratings and Characteristic (T_C = 25 °C)						
Pulsed Current	I _{SM}				100	A
Diode Forward Voltage ^a	V _{SD}	I _F = -45 A, V _{GS} = 0 V		1.0	1.5	V
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -45 A, di/dt = 100 A/μs		55	100	ns

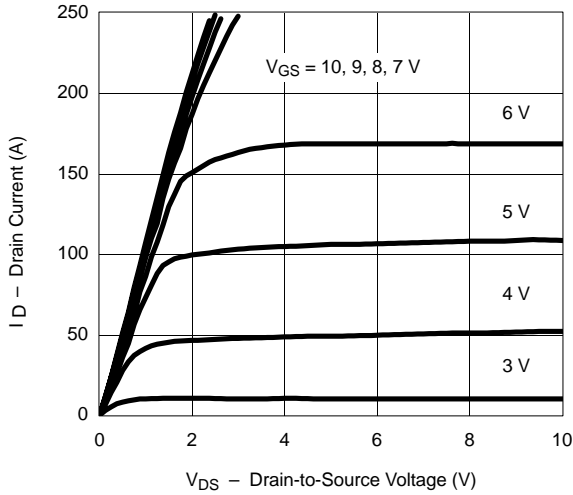
Notes

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

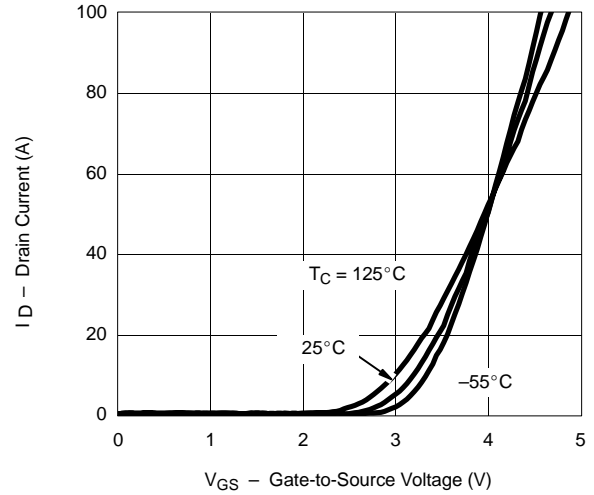


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

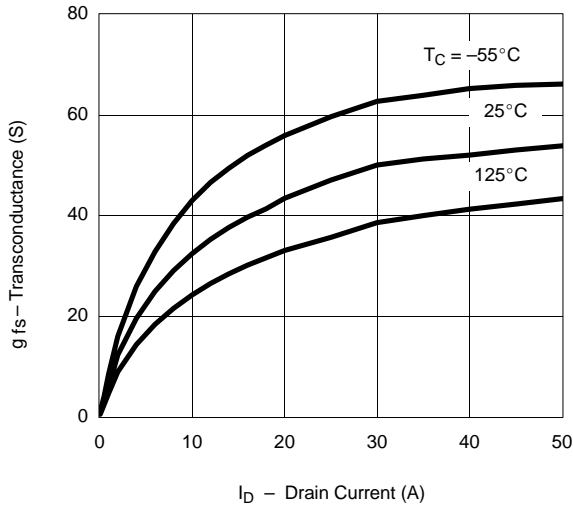
Output Characteristics



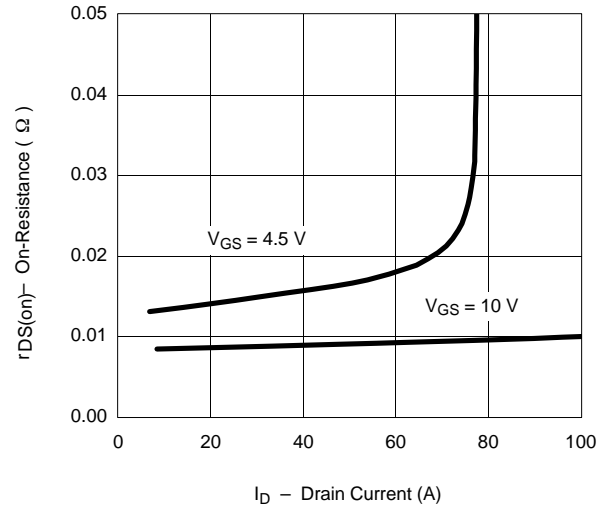
Transfer Characteristics



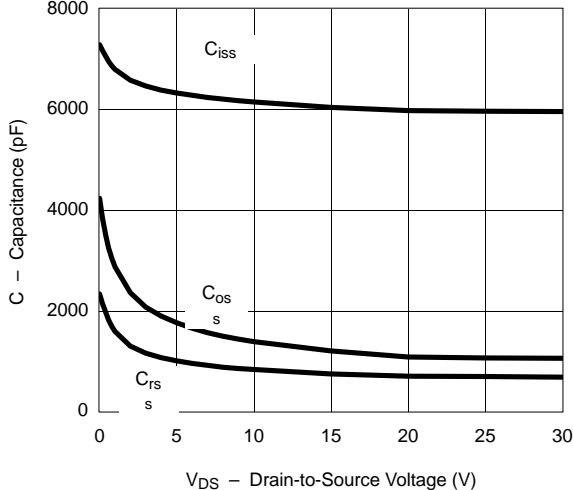
Transconductance



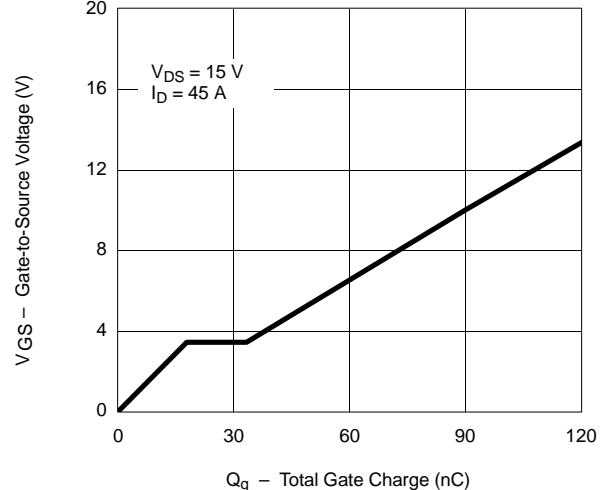
On-Resistance vs. Drain Current



Capacitance

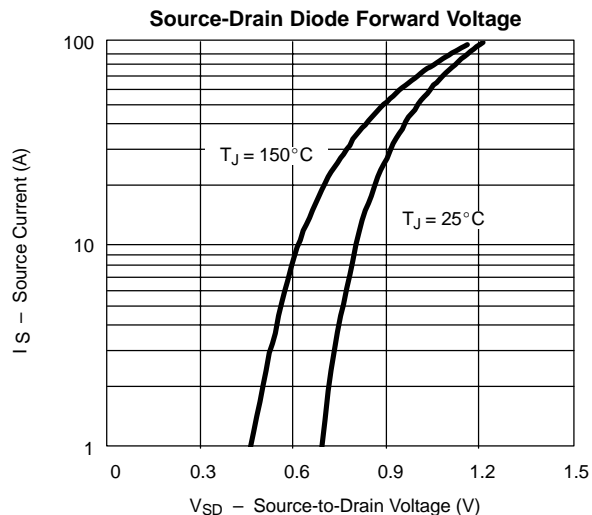
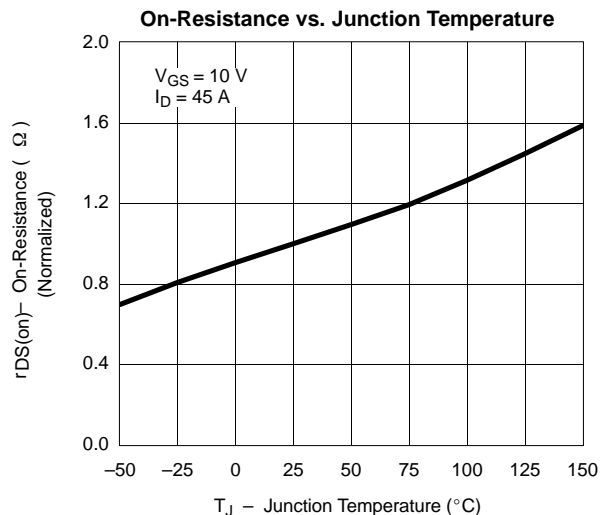


Gate Charge

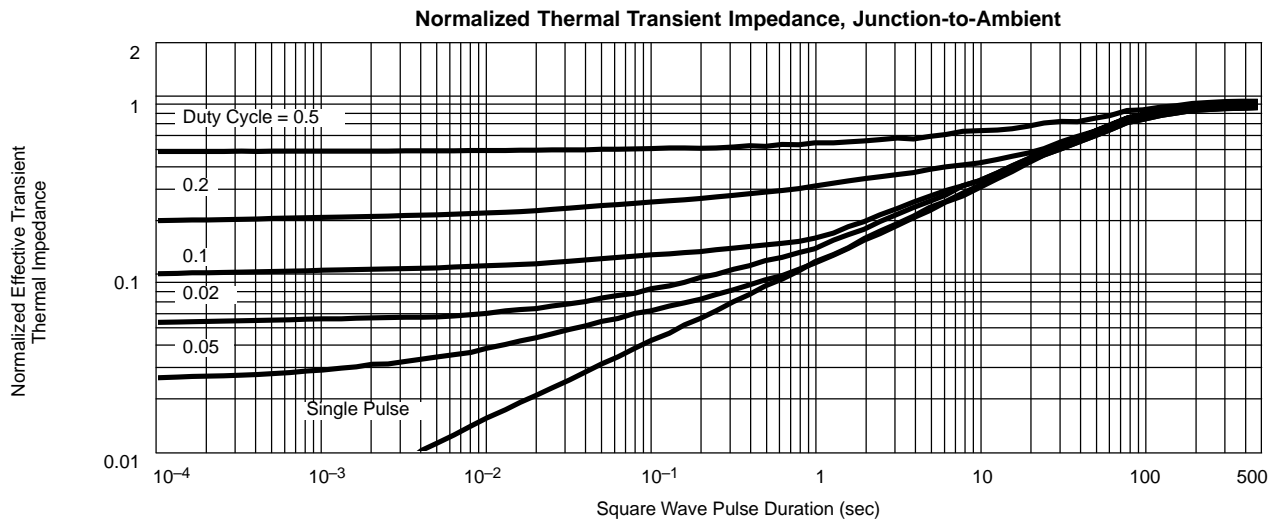
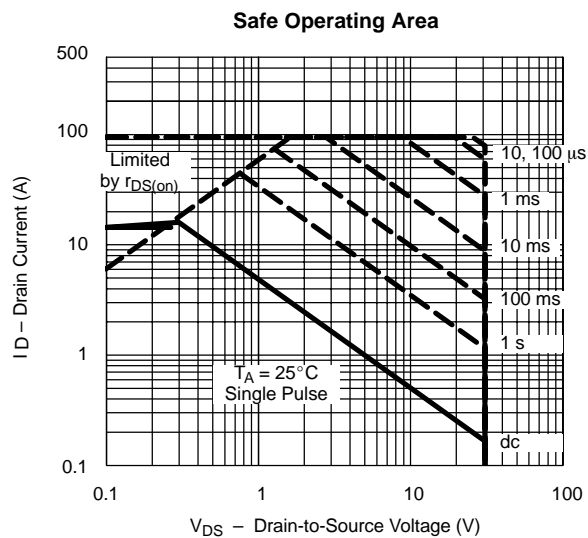
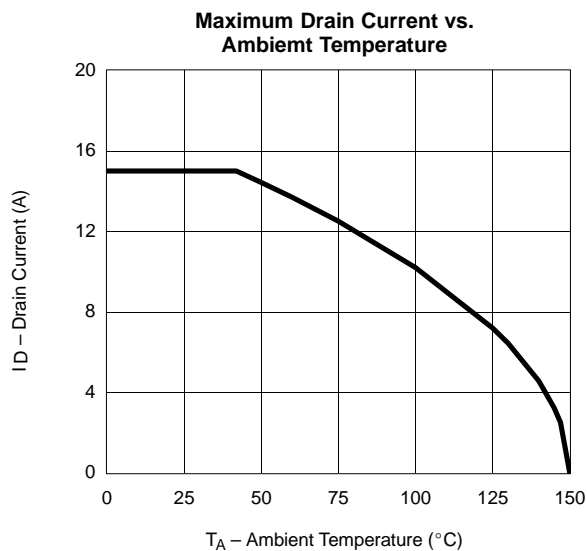




TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



THERMAL RATINGS



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