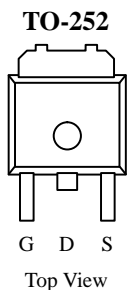


P-Channel Enhancement-Mode Transistor

Product Summary

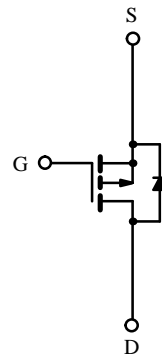
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A) ^a
-30	0.015 @ $V_{GS} = -10$ V	± 13
	0.024 @ $V_{GS} = -4.5$ V	± 8

TrenchFET™
Power MOSFETs



Drain Connected to Tab

Order Number:
SUD45P03-15



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	$T_A = 25^\circ\text{C}$	± 13
		$T_A = 100^\circ\text{C}$	± 8
Pulsed Drain Current	I_{DM}	± 100	A
Continuous Source Current (Diode Conduction)	I_S	-13	
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

- 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).
- Surface Mounted on FR4 Board, $t \leq 10$ sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1406.

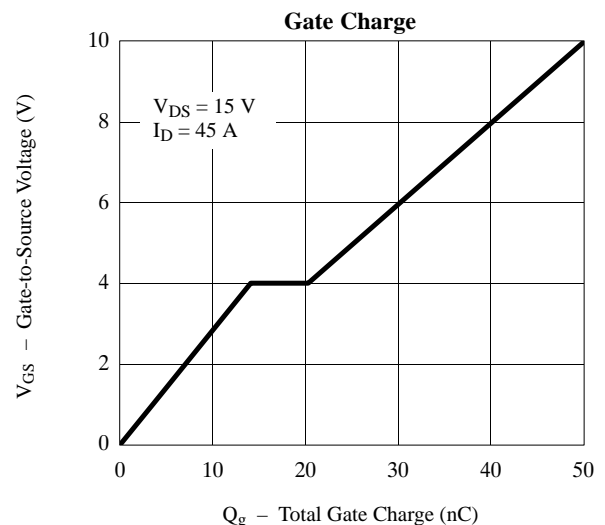
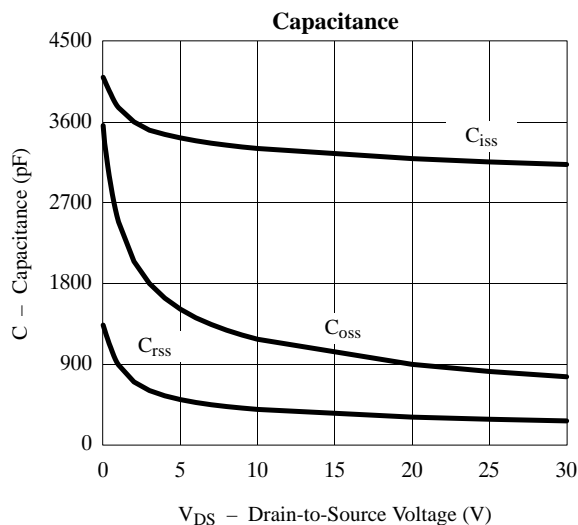
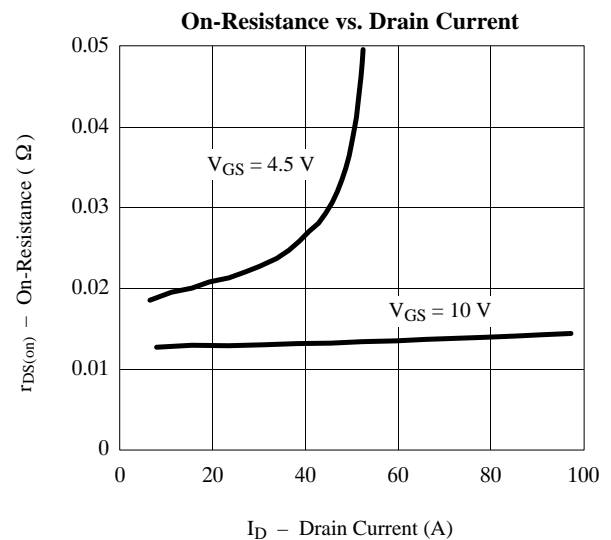
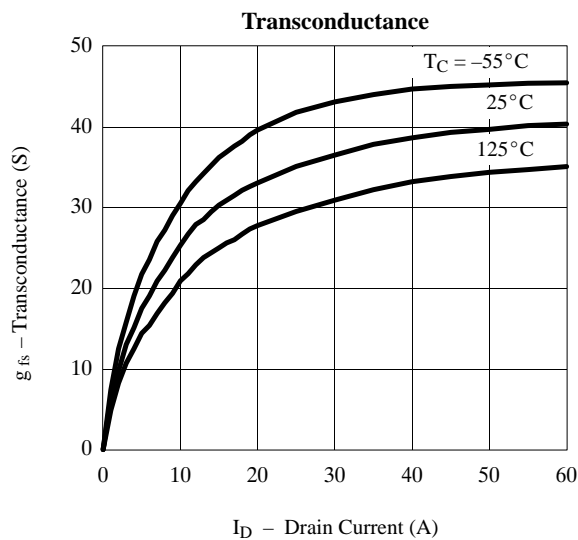
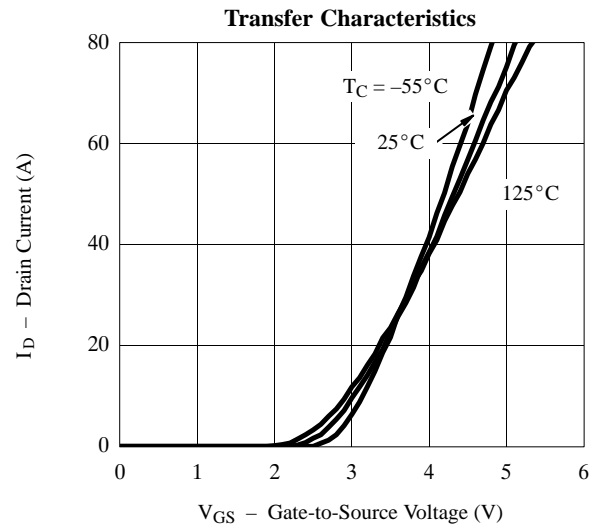
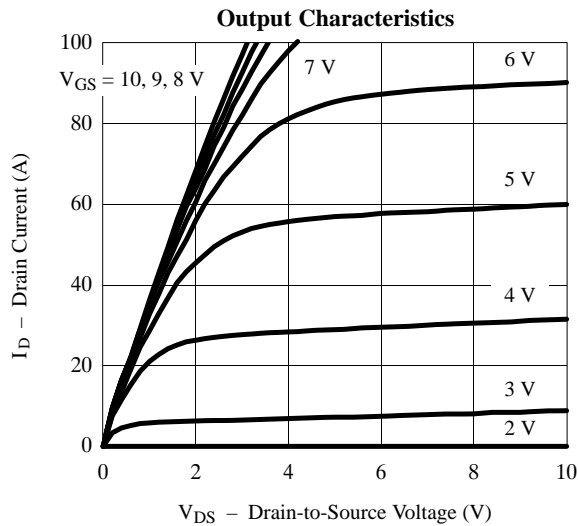
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1.0			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
		$V_{DS} = -30\text{ V}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$			-50	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} = -5\text{ V}, V_{GS} = -10\text{ V}$	-50			A
		$V_{DS} = -5\text{ V}, V_{GS} = -4.5\text{ V}$	-20			
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -13\text{ A}$		0.012	0.015	Ω
		$V_{GS} = -10\text{ V}, I_D = -13\text{ A}, T_J = 125^\circ\text{C}$		0.018	0.026	
		$V_{GS} = -4.5\text{ V}, I_D = -13\text{ A}$		0.020	0.024	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -15\text{ V}, I_D = -13\text{ A}$	20			S
Dynamic^a						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = -25\text{ V}, F = 1\text{ MHz}$		3200		pF
Output Capacitance	C_{oss}			800		
Reverse Transfer Capacitance	C_{rss}			280		
Total Gate Charge ^c	Q_g	$V_{DS} = -15\text{ V}, V_{GS} = -10\text{ V}, I_D = -45\text{ A}$		50	125	nC
Gate-Source Charge ^c	Q_{gs}			14		
Gate-Drain Charge ^c	Q_{gd}			6.2		
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = -15\text{ V}, R_L = 0.33\ \Omega$ $I_D \cong -45\text{ A}, V_{GEN} = -10\text{ V}, R_G = 2.4\ \Omega$		13	20	ns
Rise Time ^c	t_r			10	20	
Turn-Off Delay Time ^c	$t_{d(off)}$			50	100	
Fall Time ^c	t_f			20	40	
Source-Drain Diode Ratings and Characteristic ($T_C = 25^\circ\text{C}$)						
Pulsed Current	I_{SM}				100	A
Diode Forward Voltage ^b	V_{SD}	$I_F = -45\text{ A}, V_{GS} = 0\text{ V}$		1.0	1.5	V
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -45\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		55	100	ns

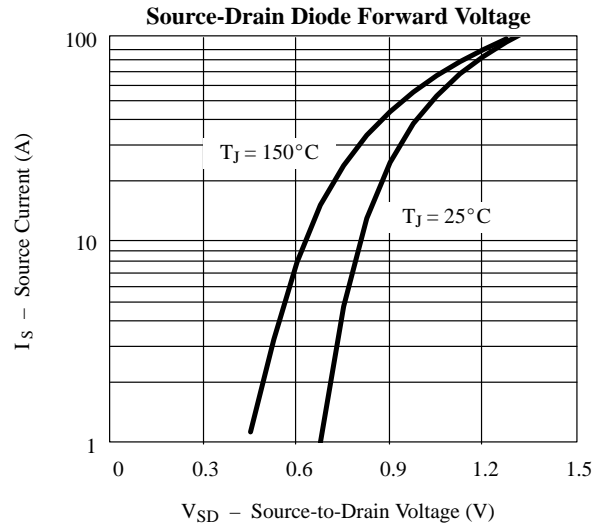
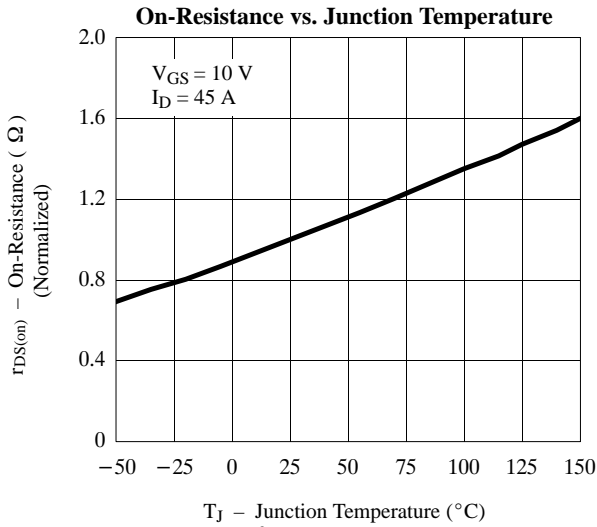
Notes

- Guaranteed by design, not subject to production testing.
- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)



Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

