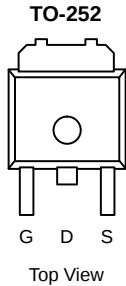
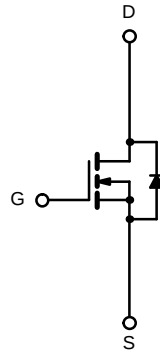


**N-Ch 30-V (D-S), 175 °C, MOSFET PWM Optimized**
*New Product***175 °C Rated**
Maximum Junction Temperature
TrenchFET®
Power MOSFETs**PRODUCT SUMMARY**

$V_{(BR)DSS}$ (V)	$R_{DS(ON)}$ (Ω)	I_D (A)
30	0.010 @ $V_{GS} = 10$ V	$\pm 50^A$
	0.015 @ $V_{GS} = 4.5$ V	± 45

Order Number:
SUD50N03-10P

Drain Connected to Tab



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	± 30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ($T_J = 175^\circ\text{C}$)	$T_C = 25^\circ\text{C}$	I_D	$\pm 50^A$	A
	$T_C = 100^\circ\text{C}$		± 40	
Pulsed Drain Current		I_{DM}	± 180	
Continuous Source Current (Diode Conduction) ^A		I_S	± 50	W
Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	65 ^C	
	$T_A = 25^\circ\text{C}$		5 ^B	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Maximum Junction-to-Ambient ^B	R_{thJA}	30	$^\circ\text{C/W}$
Maximum Junction-to-Case	R_{thJC}	2.3	

Notes:

- A. Package limited.
B. Surface mounted on FR4 Board, $t \leq 10$ sec.
C. See SOA curve for voltage derating.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70822.

**MOSFET SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)**

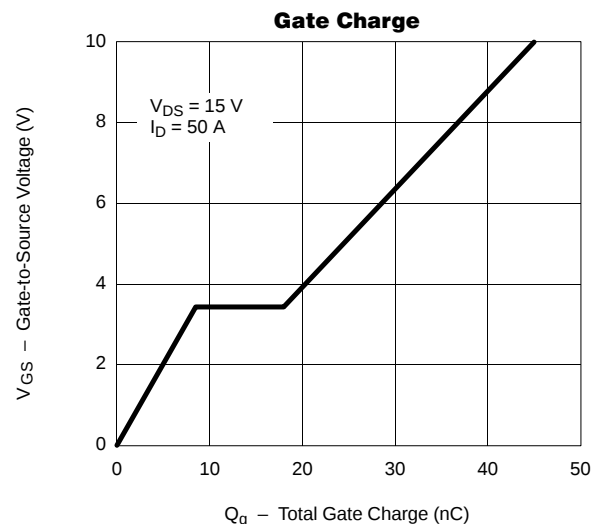
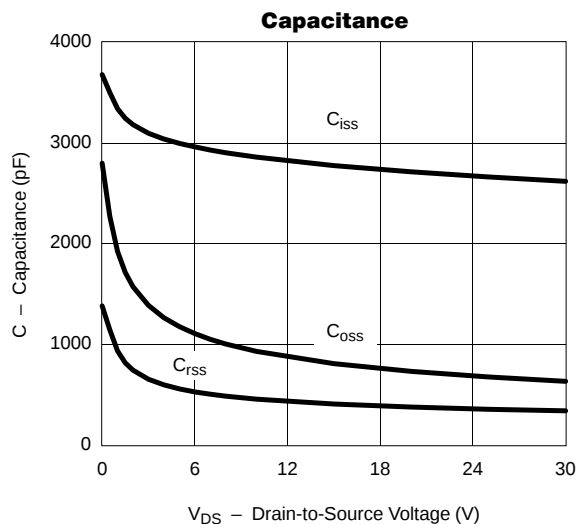
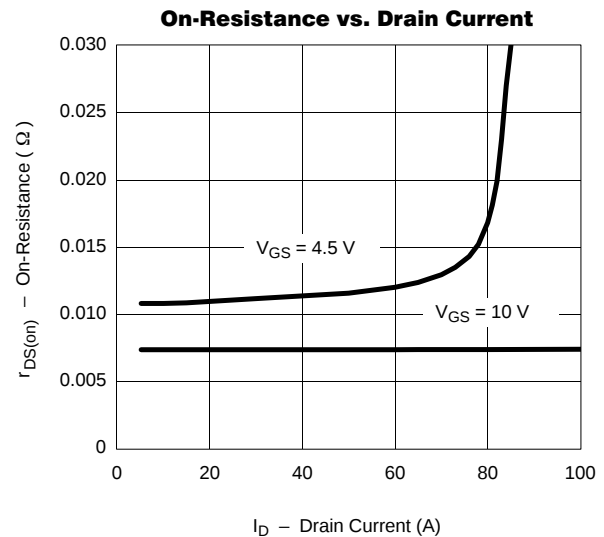
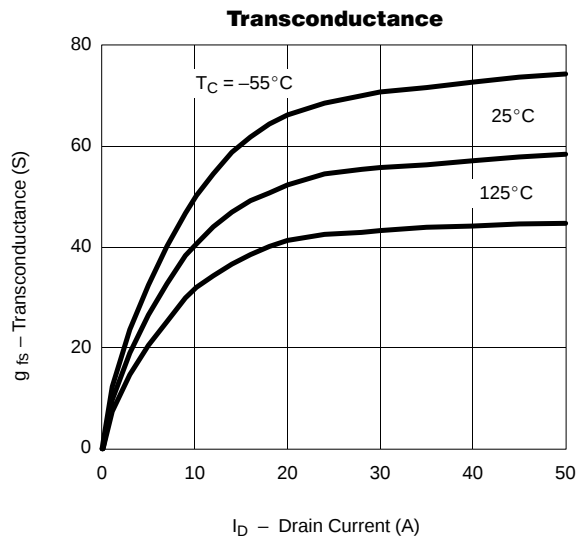
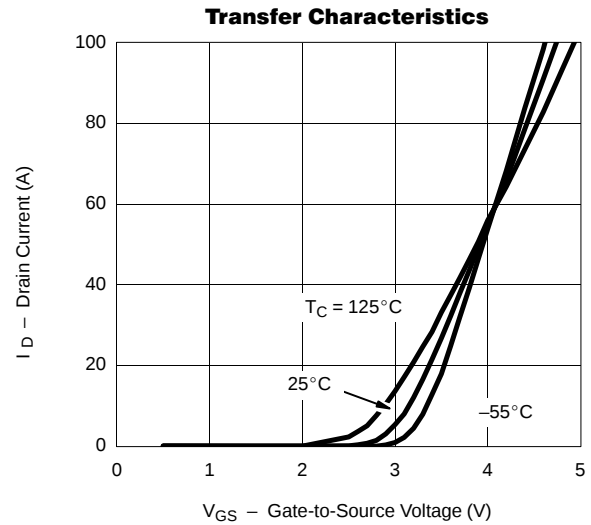
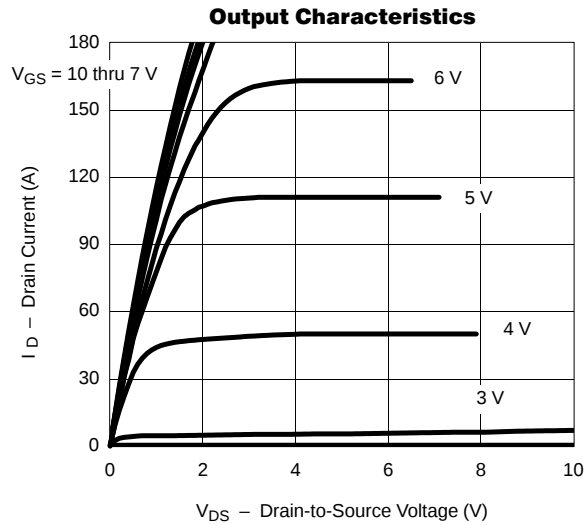
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _{DS} = 250 μA	1	2		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V			1	μA
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 125°C			50	
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 175°C			150	
On-State Drain Current ^B	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	50			A
Drain-Source On-State Resistance ^B	r _{DS(on)}	V _{GS} = 10 V, I _D = 25 A		0.0075	0.010	Ω
		V _{GS} = 10 V, I _D = 15 A, T _J = 125°C			0.016	
		V _{GS} = 10 V, I _D = 15 A, T _J = 175°C			0.019	
		V _{GS} = 4.5 V, I _D = 15 A		0.011	0.015	
Forward Transconductance ^B	g _{fs}	V _{DS} = 15 V, I _D = 15 A	20	40		S
DYNAMIC ^A						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		2700		pF
Output Capacitance	C _{oss}			680		
Reversen Transfer Capacitance	C _{rSS}			360		
Total Gate Charge ^C	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 50 A		45	70	nC
Gate-Source Charge ^C	Q _{gs}			8.5		
Gate-Drain Charge ^C	Q _{gd}			9.5		
Turn-On Delay Time ^C	t _{d(on)}	V _{DD} = 15 V, R _L = 0.3 Ω I _D = 50 A, V _{GEN} = 10 V, R _G = 2.5 Ω		12	20	ns
Rise Time ^C	t _r			7	15	
Turn-Off Delay Time ^C	t _{d(off)}			35	60	
Fall Time ^C	t _f			12	20	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25°C) ^A						
Continuous Current	I _S				50	A
Pulsed Current	I _{SM}				180	
Forward Voltage ^B	V _{SD}	I _F = 50 A, V _{GS} = 0 V		1.2	1.5	V
Reverse Recovery Time	t _{rr}	I _F = 50 A, di/dt = 100 A/μs		40	80	ns

Notes:

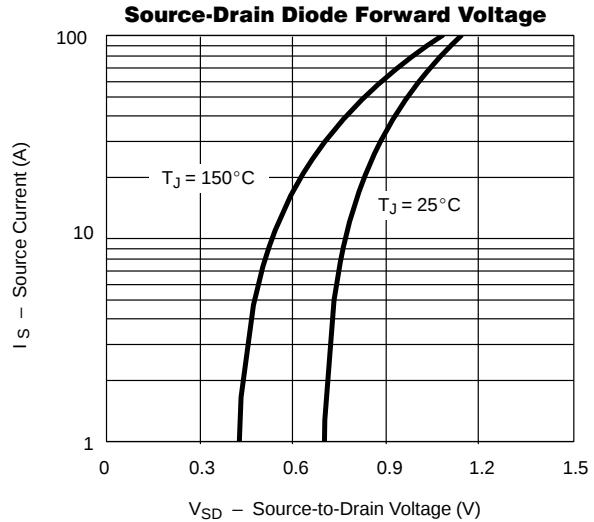
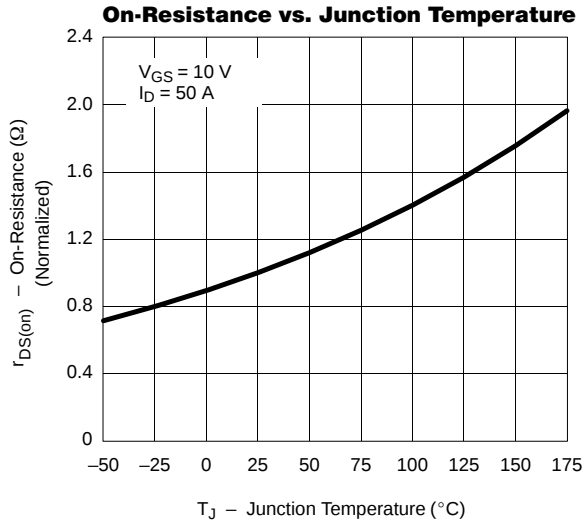
- A. Guaranteed by design, not subject to production testing.
 B. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
 C. Independent of operating temperature.



Typical Characteristics (25°C Unless Otherwise Noted)



Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

