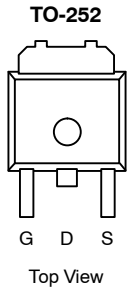


PRODUCT SUMMARY

V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
30	0.007 @ V _{GS} = 10 V	20
	0.010 @ V _{GS} = 4.5 V	16

FEATURES

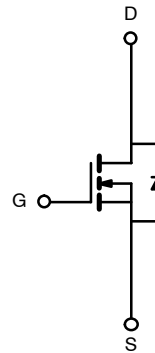
- TrenchFET® Power MOSFET
- 175 °C Maximum Junction Temperature
- 100% R_g Tested



Drain Connected to Tab

Ordering Information:

SUD50N03-07
SUD50N03-07—E3 (Lead Free)



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	± 20	
Continuous Drain Current ^a	I _D	T _A = 25 °C	20
		T _A = 100 °C	14
Pulsed Drain Current	I _{DM}	100	A
Continuous Source Current (Diode Conduction) ^a	I _S	20	
Maximum Power Dissipation	P _D	T _C = 25 °C	136
		T _A = 25 °C	5 ^a
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 175	°C

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	R _{thJA}		30	°C/W
Maximum Junction-to-Case	R _{thJC}	0.85	1.1	

Notes

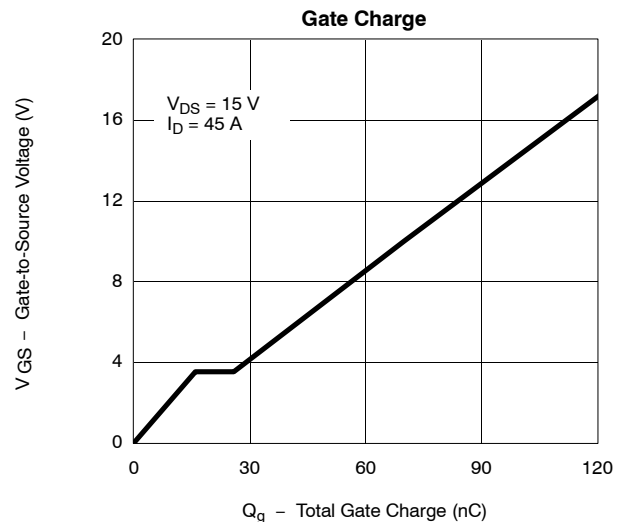
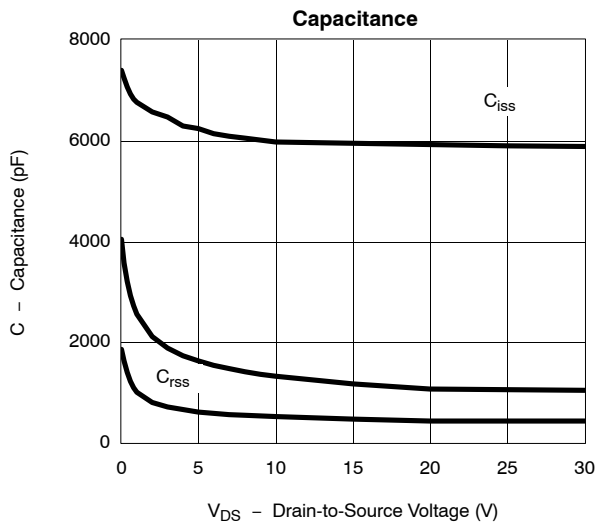
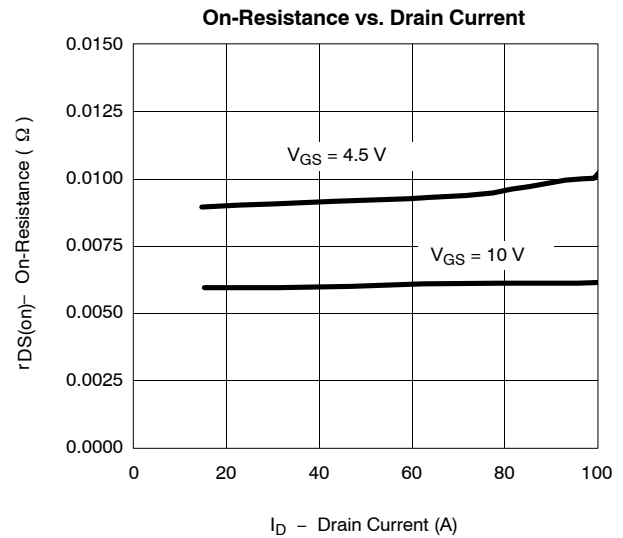
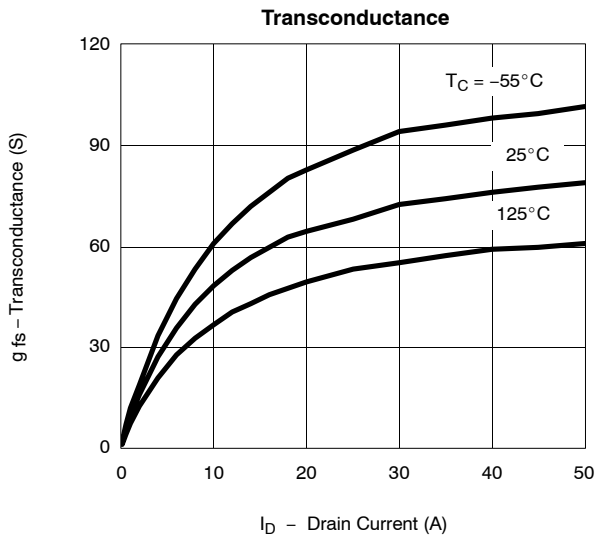
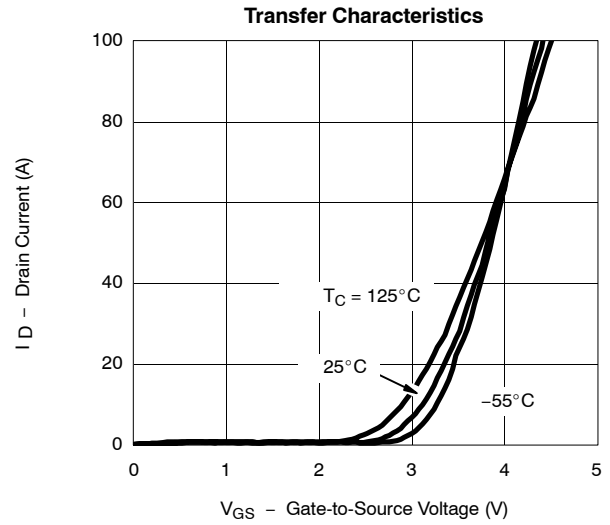
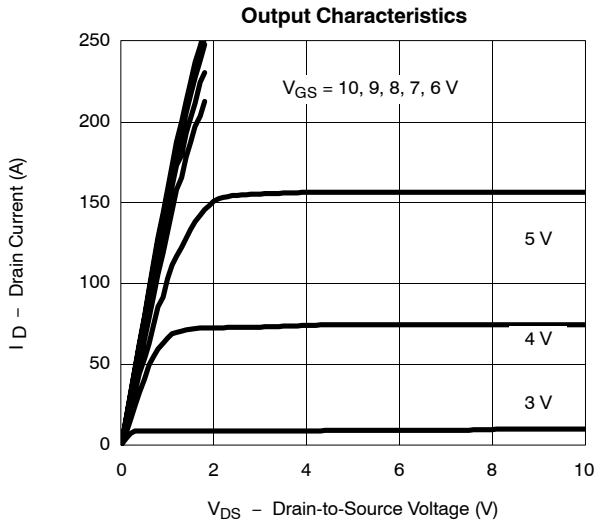
a. Surface Mounted on FR4 Board, t ≤ 10 sec.

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	2.0	3.0	
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
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 20 A			0.007	Ω
		V _{GS} = 10 V, I _D = 20 A, T _J = 125 °C			0.011	
		V _{GS} = 4.5 V, I _D = 20 A			0.010	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 20 A	20			S
Dynamic^a						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		5600		pF
Output Capacitance	C _{oss}			1100		
Reverse Transfer Capacitance	C _{rss}			450		
Total Gate Charge ^c	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 50 A		70	130	nC
Gate-Source Charge ^c	Q _{gs}			16		
Gate-Drain Charge ^c	Q _{gd}			10		
Gate Resistance	R _g		0.5		3.1	Ω
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		14	30	ns
Rise Time ^c	t _r			11	20	
Turn-Off Delay Time ^c	t _{d(off)}			60	120	
Fall Time ^c	t _f			15	40	
Source-Drain Diode Ratings and Characteristic (T_C = 25 °C)						
Pulsed Current	I _{SM}				100	A
Diode Forward Voltage ^b	V _{SD}	I _F = 100 A, V _{GS} = 0 V		1.2	1.5	V
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 50 A, di/dt = 100 A/μs		55	100	ns

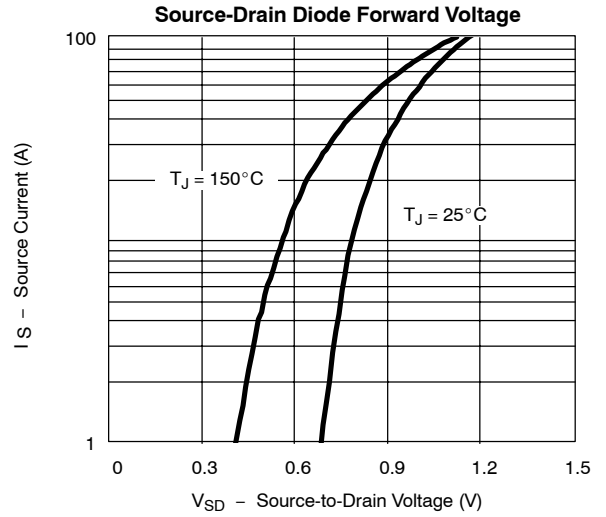
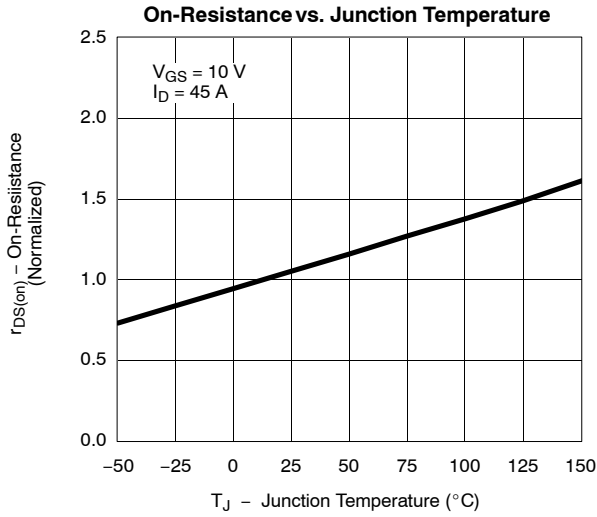
Notes

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

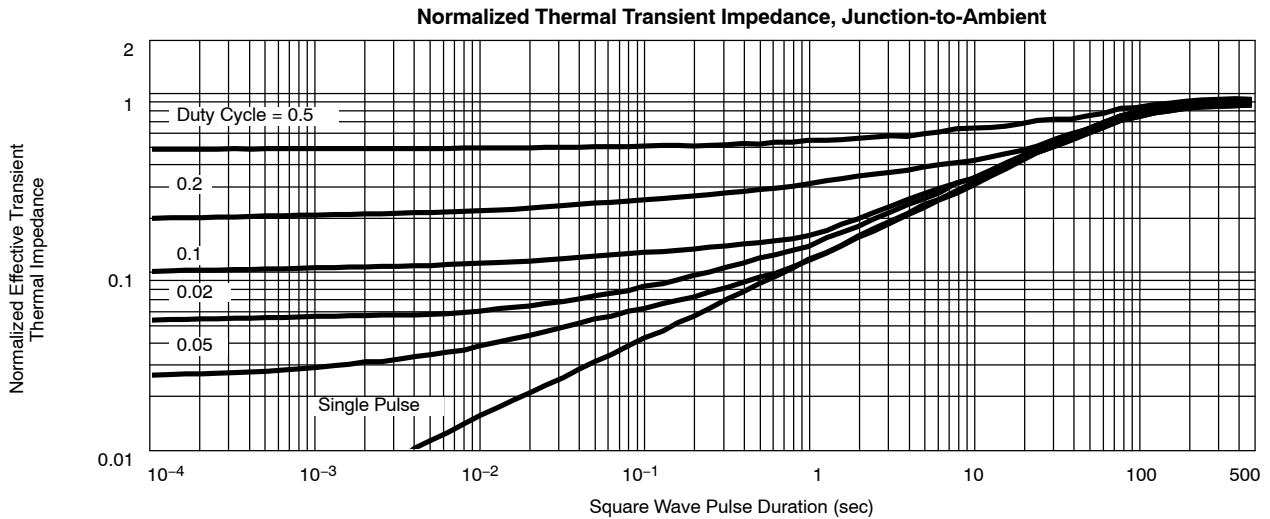
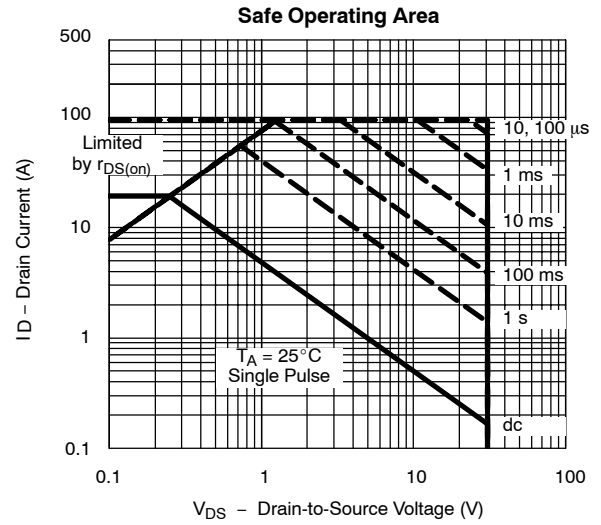
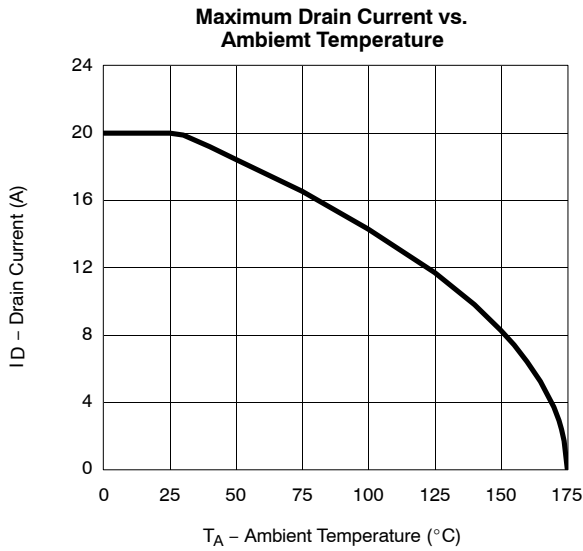
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



THERMAL RATINGS



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