



P-Channel 8-V (D-S), 175°C MOSFET

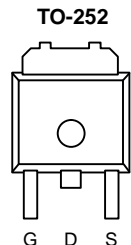
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-8	0.052 @ $V_{GS} = -4.5$ V	-15
	0.070 @ $V_{GS} = -2.5$ V	-13
	0.105 @ $V_{GS} = -1.8$ V	-10.5

FEATURES

- TrenchFET® Power MOSFET
- 175°C Junction Temperature
- Low Gate Threshold

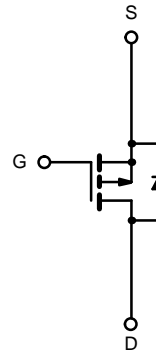
APPLICATIONS

- Pass Transistor for LDOs



Drain Connected to Tab

Order Number:
SUD15P01-52



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	-8	V	
Gate-Source Voltage	V_{GS}	± 8		
Continuous Drain Current ($T_J = 175^\circ\text{C}$)	I_D	$T_C = 25^\circ\text{C}$	-15	A
		$T_C = 125^\circ\text{C}$	-8.7	
Pulsed Drain Current	I_{DM}	-25		
Avalanche Current	I_{AR}	-10		
Repetitive Avalanche Energy ^a	E_{AR}	L = 0.1 mH	5	mJ
Power Dissipation			$T_C = 25^\circ\text{C}$	
		$T_A = 25^\circ\text{C}$		1.5 ^c
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 175	$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient ^b	R_{thJA}	$t \leq 10$ sec	40	50	$^\circ\text{C/W}$
		Steady State	80	100	
Junction-to-Case	R_{thJC}	5.6	7		

Notes:

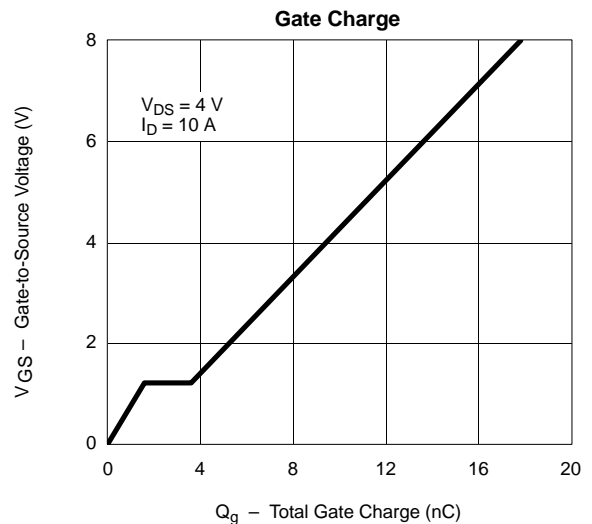
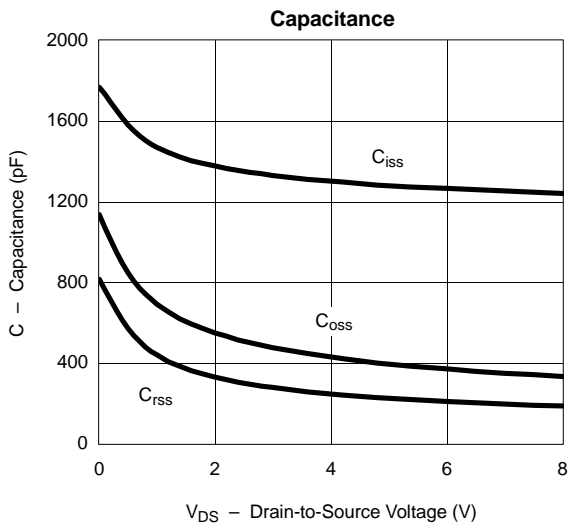
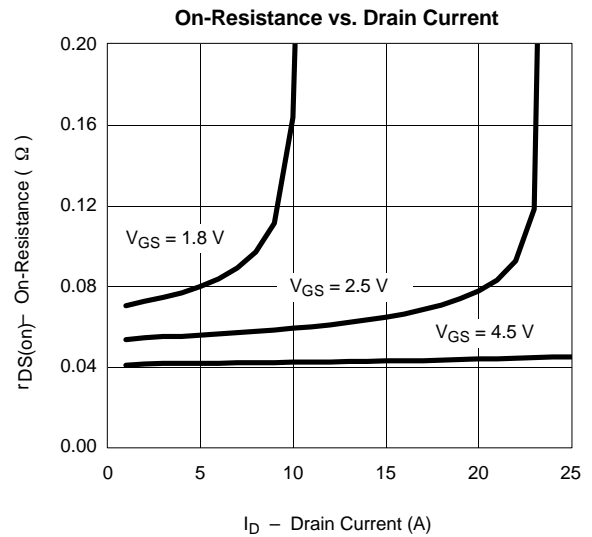
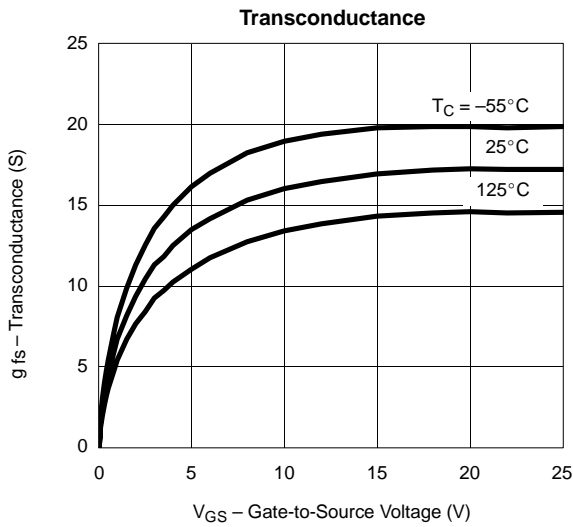
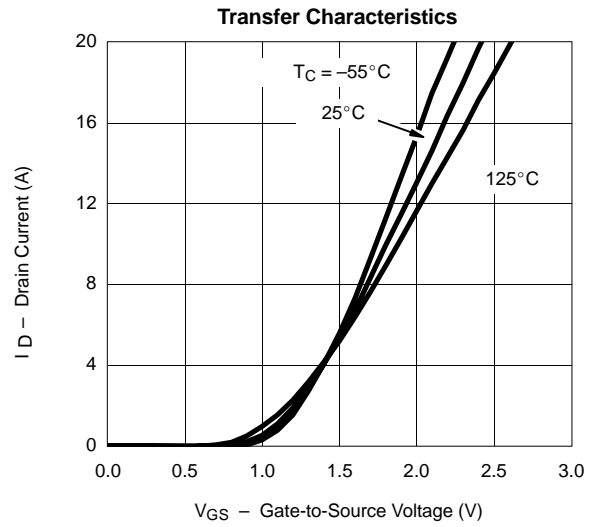
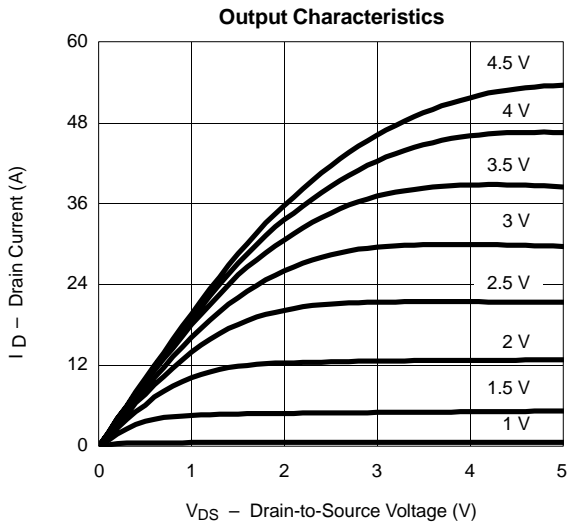
- Duty cycle $\leq 1\%$.
- When mounted on 1" square PCB (FR-4 material).
- See SOA curve for voltage derating.

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	-8			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45		-0.8	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -6.4 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -6.4 V, V _{GS} = 0 V, T _J = 125 °C			-50	
		V _{DS} = -6.4 V, V _{GS} = 0 V, T _J = 175 °C			-150	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -4.5 V	-25			A
		V _{DS} = -5 V, V _{GS} = -2.5 V	-10			
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -10 A		0.043	0.052	Ω
		V _{GS} = -4.5 V, I _D = -13 A, T _J = 125 °C			0.065	
		V _{GS} = -4.5 V, I _D = -13 A, T _J = 175 °C			0.075	
		V _{GS} = -2.5 V, I _D = -5 A			0.070	
		V _{GS} = -1.8 V, I _D = -2 A			0.105	
Forward Transconductance ^a	g _{fs}	V _{DS} = -5 V, I _D = -10 A		16		S
Dynamic^b						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = -4 V, f = 1 MHz		1300		pF
Output Capacitance	C _{oss}			430		
Reverse Transfer Capacitance	C _{rss}			245		
Total Gate Charge ^c	Q _g	V _{DS} = -4 V, V _{GS} = -4.5 V, I _D = -10 A		10.5	15	nC
Gate-Source Charge ^c	Q _{gs}			1.6		
Gate-Drain Charge ^c	Q _{gd}			2		
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = -4 V, R _L = 0.22 Ω I _D = -15 A, V _{GEN} = -4.5 V, R _G = 2.5 Ω		10	20	ns
Rise Time ^c	t _r			16	25	
Turn-Off Delay Time ^c	t _{d(off)}			30	45	
Fall Time ^c	t _f			25	40	
Source-Drain Diode Ratings and Characteristics (T_C = 25 °C)^b						
Continuous Current	I _s				-15	A
Pulsed Current	I _{SM}				-25	
Forward Voltage ^a	V _{SD}	I _F = -15 A, V _{GS} = 0 V			-1.5	V
Reverse Recovery Time	t _{rr}	I _F = -15 A, di/dt = 100 A/μs		45	75	ns

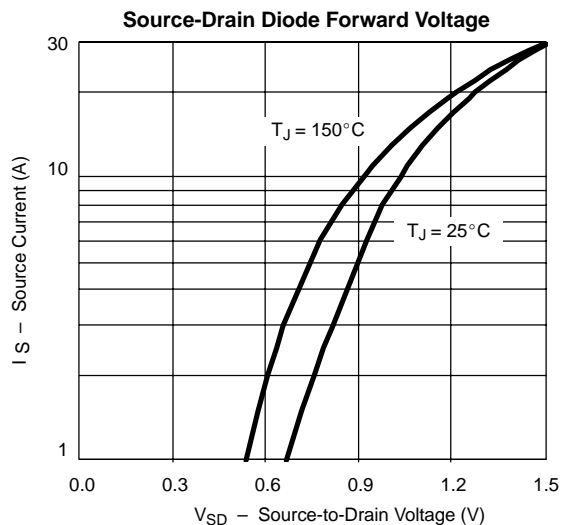
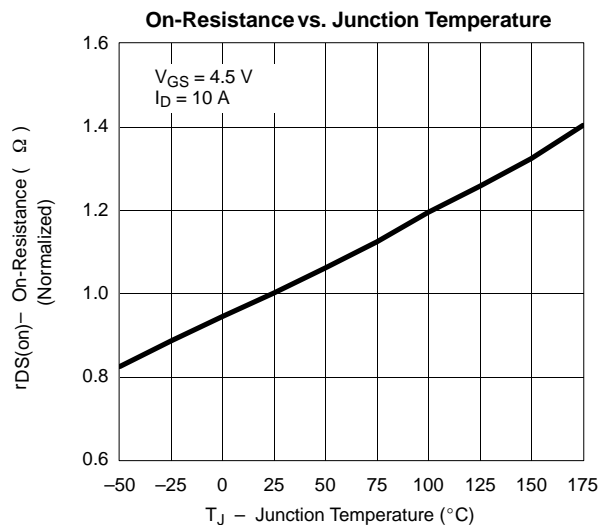
Notes:

- 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)



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THERMAL RATINGS

