

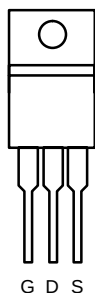


P-Channel 8-V (D-S), 175°C MOSFET

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	-10
	0.105 @ $V_{GS} = -1.8$ V	-10.5

175°C Rated
Maximum Junction Temperature
TrenchFET®
Power MOSFETs

TO-220AB

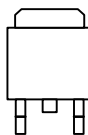


Top View

SUP15P01-52

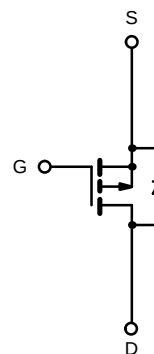
DRAIN connected to TAB

TO-263



Top View

SUB15P01-52



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°C)	T _C = 25°C	I _D	−15	A
	T _C = 125°C		−8.7	
Pulsed Drain Current		I _{DM}	−25	
Avalanche Current		I _{AR}	−10	
Repetitive Avalanche Energy ^b	L = 0.1 mH	E _{AR}	5	mJ
Power Dissipation	T _C = 25°C (TO-220AB and TO-263)	P _D	25 ^d	W
	T _A = 25°C (TO-263) ^c		2.1	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	−55 to 175	°C

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient	PCB Mount (TO-263) ^c	R_{thJA}	58	70	$^\circ\text{C/W}$
Junction-to-Case		R_{thJC}	5	6	
Junction-to-Lead		R_{thJL}	16	20	

Notes:

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

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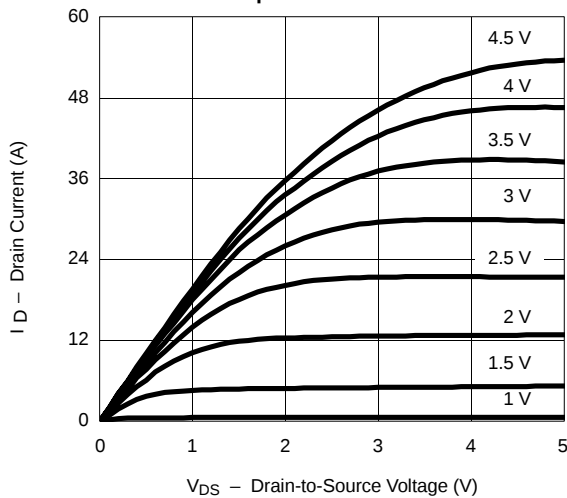
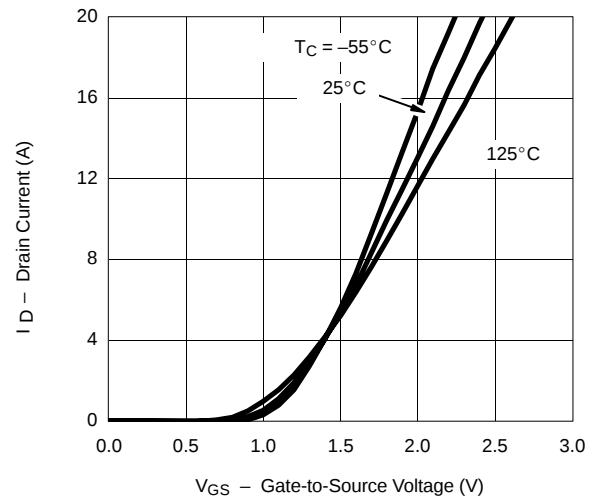
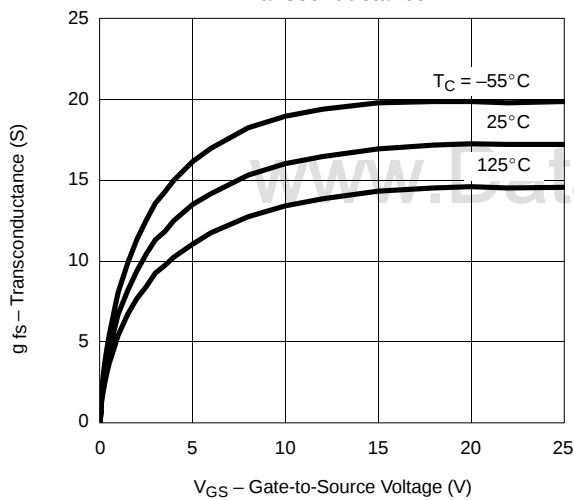
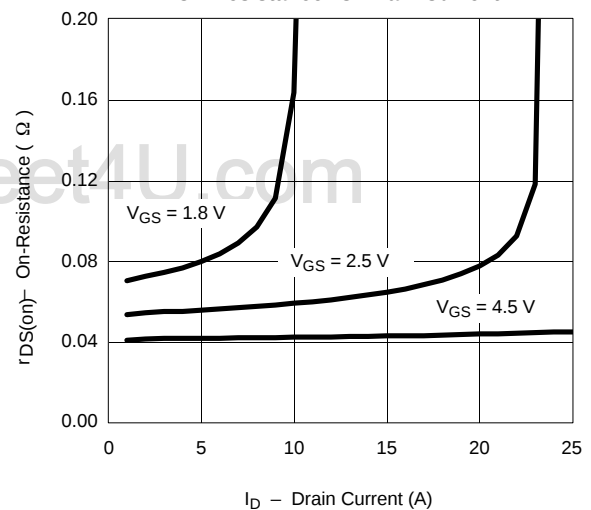
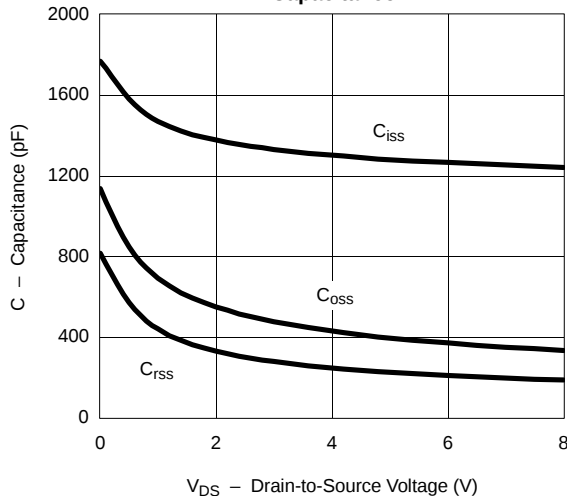
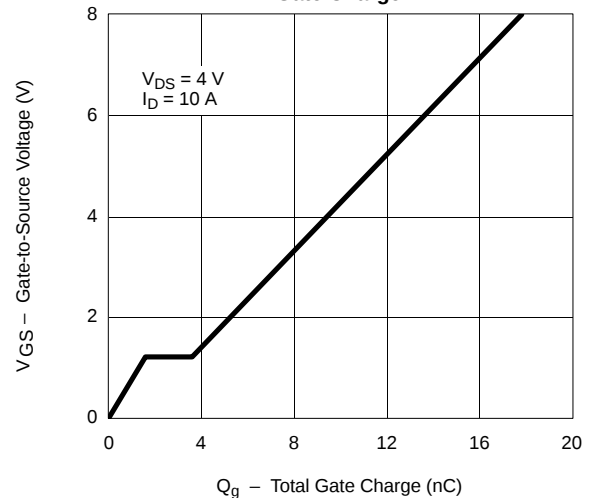
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SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = -250 μA	-8			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45			
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 = -10 A, T _J = 125 °C			0.065	
		V _{GS} = -4.5 V, I _D = -10 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
Peak Reverse Recovery Current	I _{RM(REC)}			-1	-1.5	A
Reverse Recovery Charge	Q _{rr}				0.023	0.056

Notes:

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

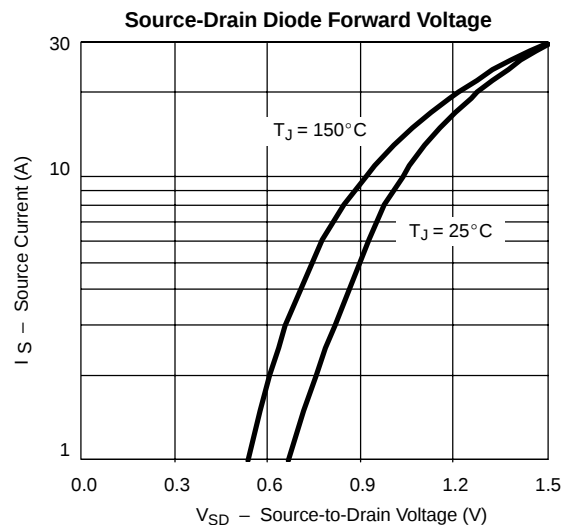
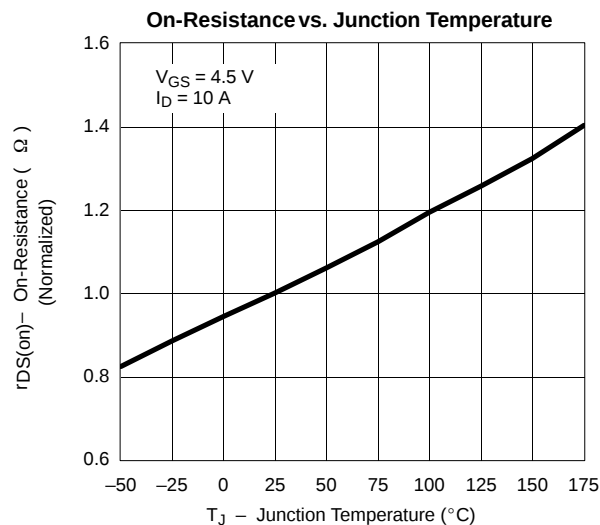

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)
Output Characteristics

Transfer Characteristics

Transconductance

On-Resistance vs. Drain Current

Capacitance

Gate Charge


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TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



THERMAL RATINGS

