

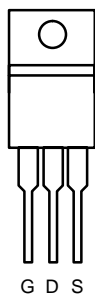


P-Channel 8-V (D-S), 175°C MOSFET

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

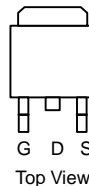


Top View

SUP15P01-52

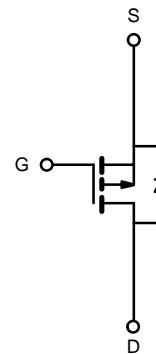
DRAIN connected to TAB

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 ($T_J = 175^\circ\text{C}$)	$T_C = 25^\circ\text{C}$	I_D	-15	A
	$T_C = 125^\circ\text{C}$		-8.7	
Pulsed Drain Current		I_{DM}	-25	
Avalanche Current		I_{AR}	-10	
Repetitive Avalanche Energy ^b		E_{AR}	5	mJ
L = 0.1 mH				
Power Dissipation	$T_C = 25^\circ\text{C}$ (TO-220AB and TO-263)	P_D	25 ^d	W
	$T_A = 25^\circ\text{C}$ (TO-263) ^c		2.1	
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	PCB Mount (TO-263) ^c	R_{thJA}	58	70	$^\circ\text{C}/\text{W}$
Junction-to-Case		R_{thJC}	5	6	
Junction-to-Lead		R_{thJL}	16	20	

Notes:

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



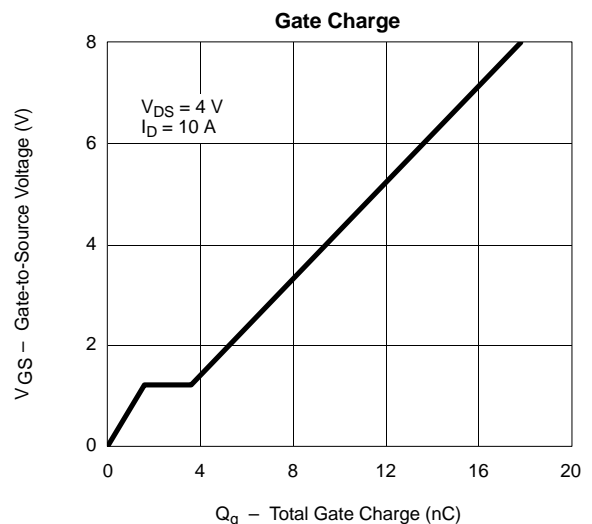
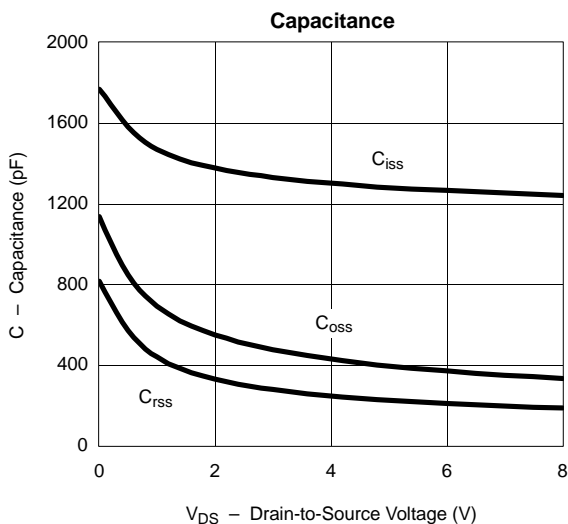
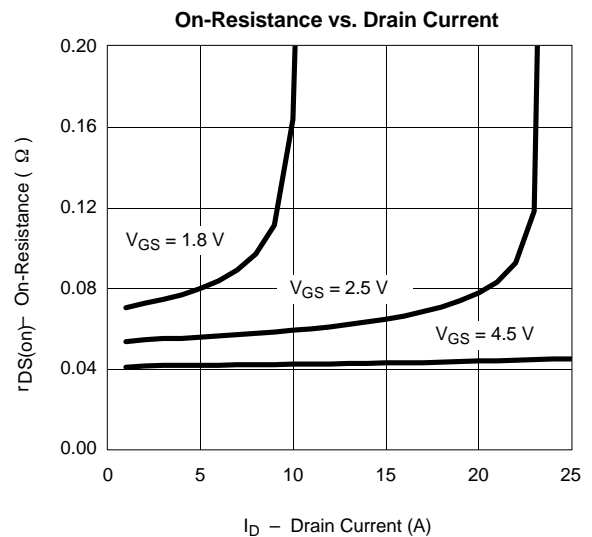
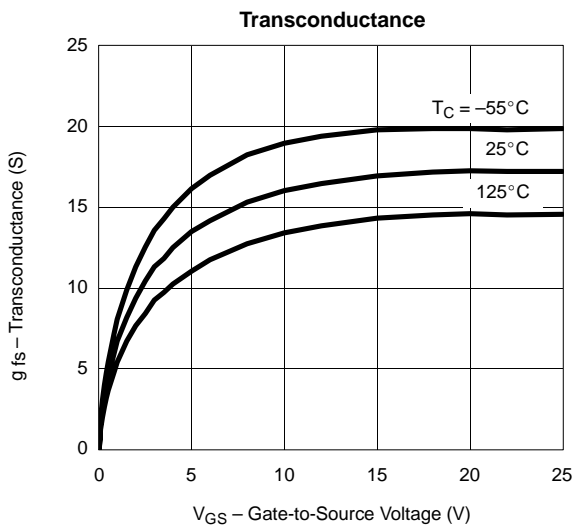
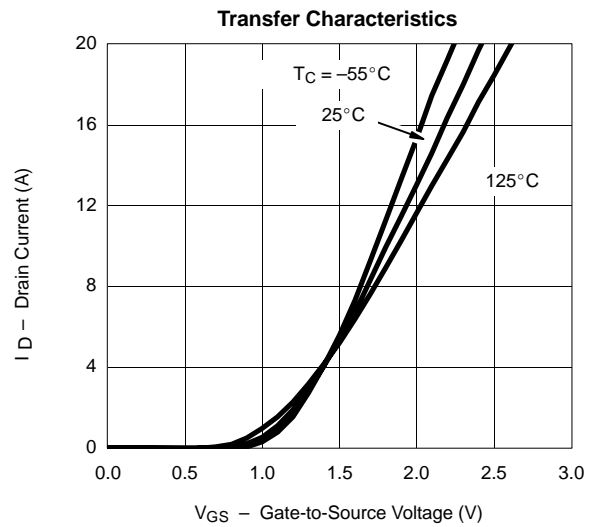
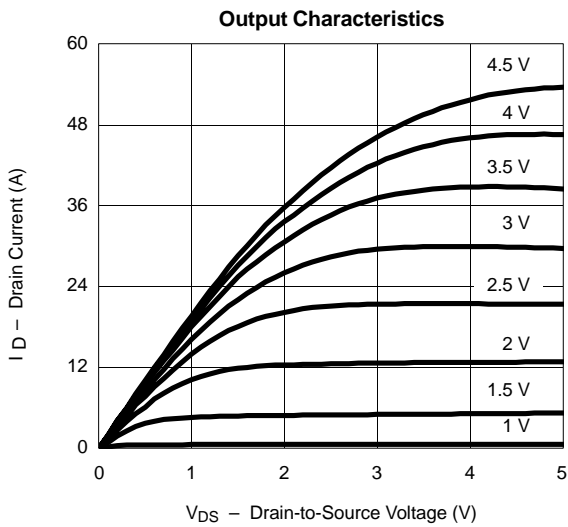
SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = -250 μA	-8			V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45				
Gate-Body Leakage	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	μC

Notes:

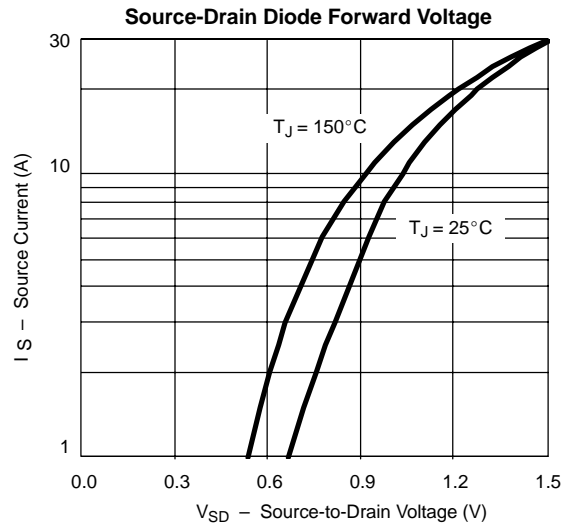
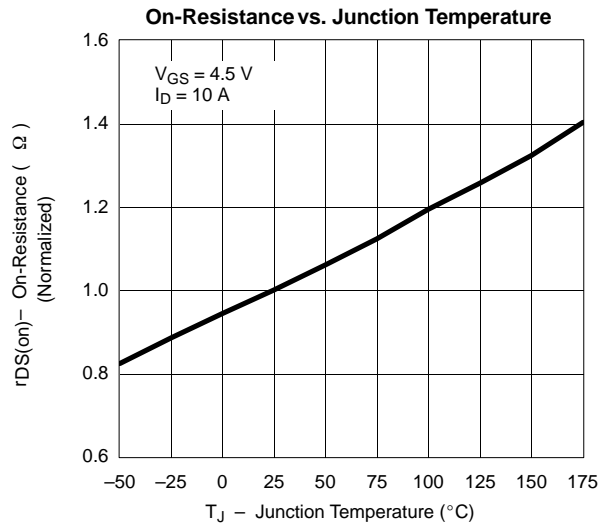
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.
- c. Independent of operating temperature.



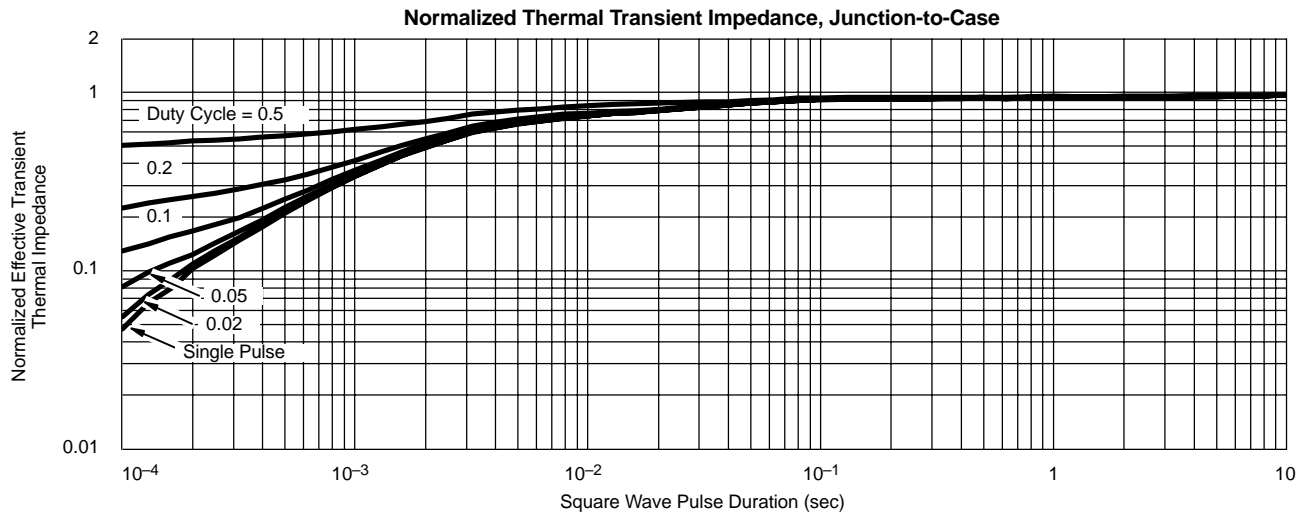
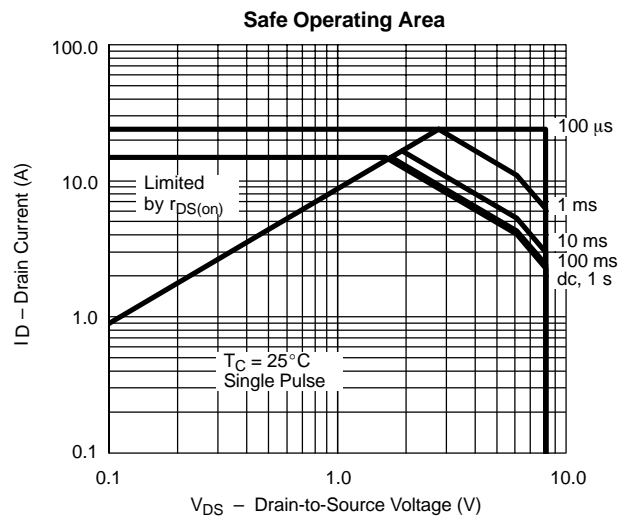
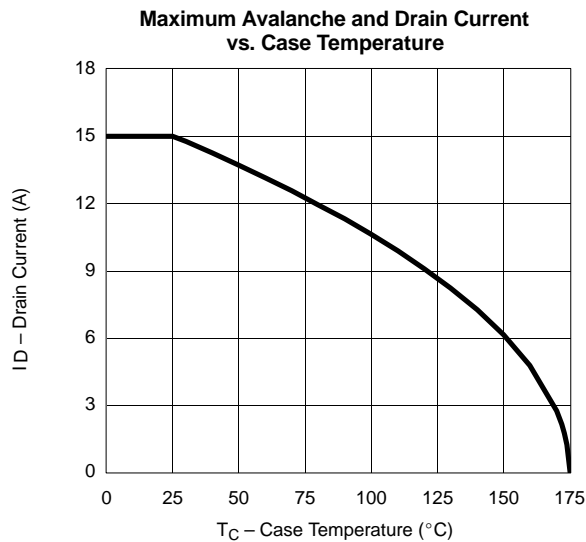
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



THERMAL RATINGS





Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.