



New Product

Si1417EDH
Vishay Siliconix

P-Channel 12-V (D-S) MOSFET

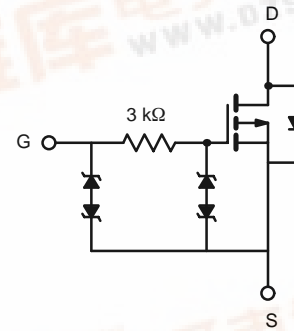
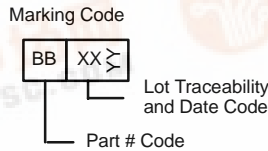
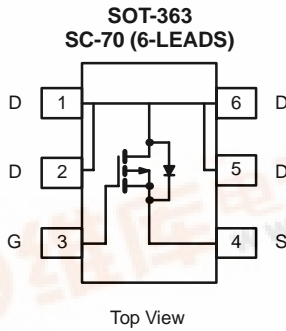
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-12	0.085 @ $V_{GS} = -4.5$ V	-3.3
	0.115 @ $V_{GS} = -2.5$ V	-2.9
	0.160 @ $V_{GS} = -1.8$ V	-2.4

FEATURES

- TrenchFET® Power MOSFETS: 1.8-V Rated
- ESD Protected: 3000 V
- Thermally Enhanced SC-70 Package

APPLICATIONS

- Load Switching
- PA Switch
- Level Switch



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	5 secs	Steady State	Unit	
Drain-Source Voltage	V_{DS}	-12		V	
Gate-Source Voltage	V_{GS}	± 12			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	-3.3	-2.7	A
		$T_A = 85^\circ\text{C}$	-2.4	-1.9	
Pulsed Drain Current	I_{DM}	-8			
Continuous Diode Current (Diode Conduction) ^a	I_S	-1.4	-0.9		
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	1.56	1.0	W
		$T_A = 85^\circ\text{C}$	0.81	0.52	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{thJA}	60	80	$^\circ\text{C/W}$
	Steady State		100	125	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	34	45	

Notes:
a. Surface Mounted on 1" x 1" FR4 Board.

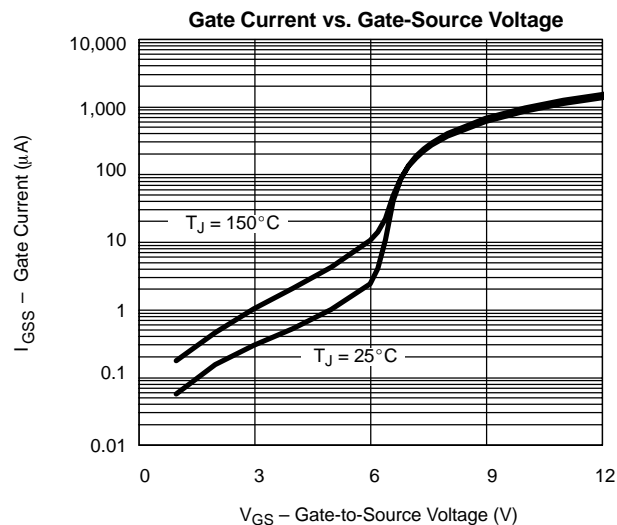
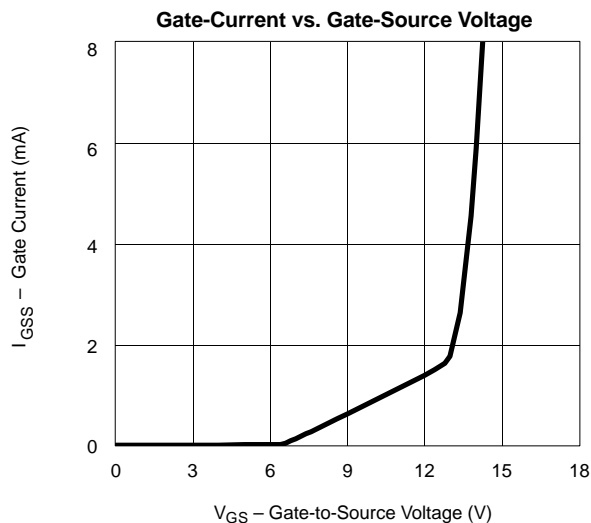


SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±4.5 V			±1.5	μA
		V _{DS} = 0 V, V _{GS} = ±12 V			±10	mA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -9.6 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -9.6 V, V _{GS} = 0 V, T _J = 85 °C			-5	μA
On-State Drain Current ^a	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -4.5 V	-4			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -3.3 A		0.070	0.085	Ω
		V _{GS} = -2.5 V, I _D = -2.9 A		0.095	0.115	
		V _{GS} = -1.8 V, I _D = -1.0 A		0.133	0.160	
Forward Transconductance ^a	g _{fs}	V _{DS} = -10 V, I _D = -3.3 A		8		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1.4 A, V _{GS} = 0 V		-0.80	-1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -6 V, V _{GS} = -4.5 V, I _D = -3.3 A		5.8	8	nC
Gate-Source Charge	Q _{gs}			1.3		
Gate-Drain Charge	Q _{gd}			1.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -6 V, R _L = 6 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		0.60	1.0	μs
Rise Time	t _r			1.4	2.1	
Turn-Off Delay Time	t _{d(off)}			4.9	7.5	
Fall Time	t _f			4.9	7.5	

Notes

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

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

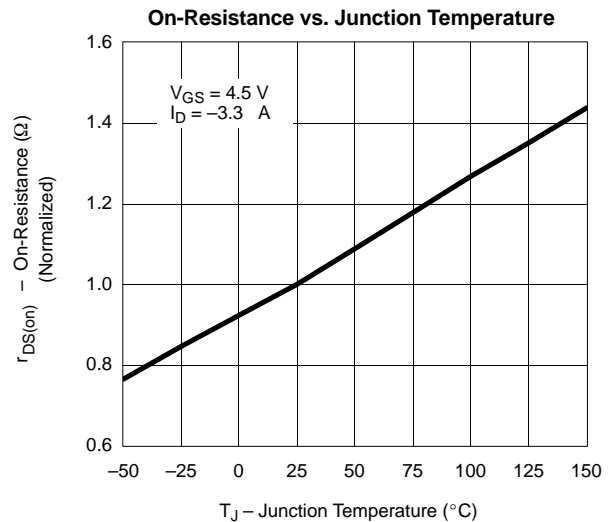
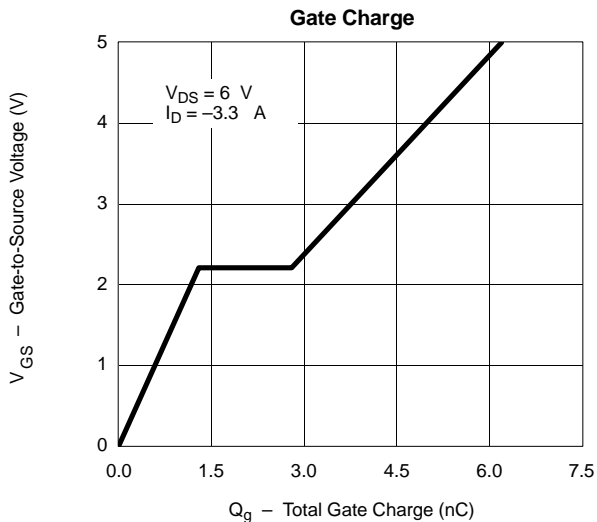
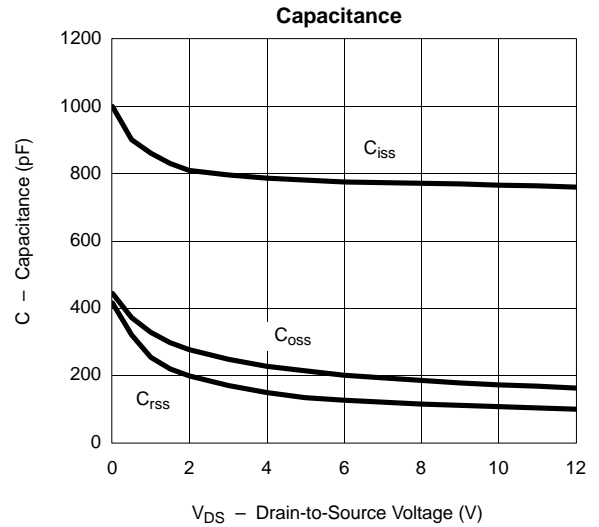
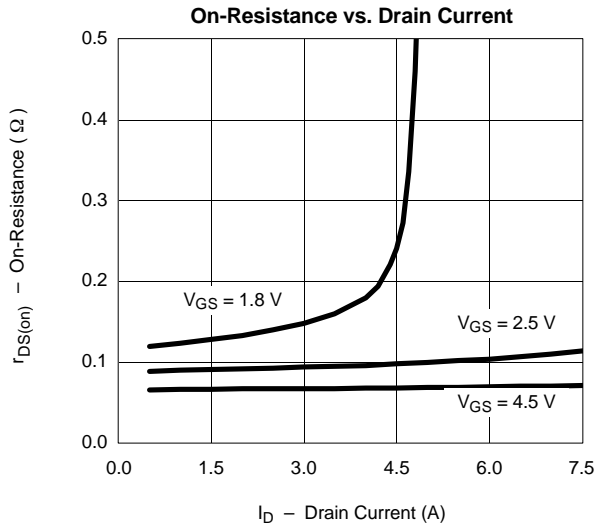
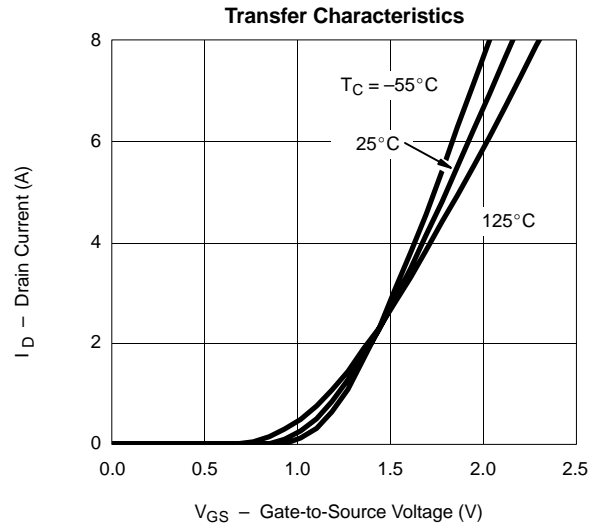
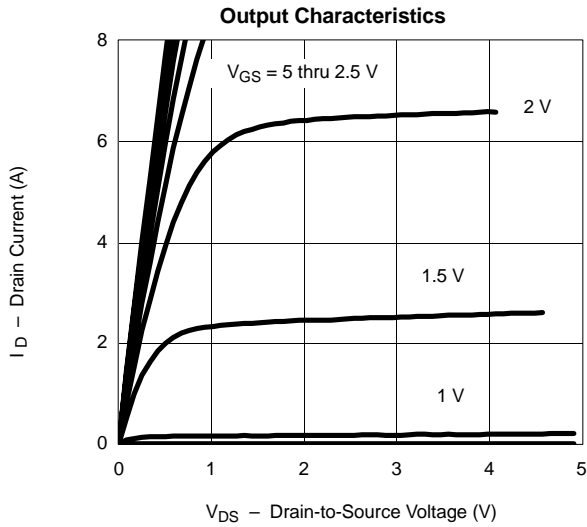




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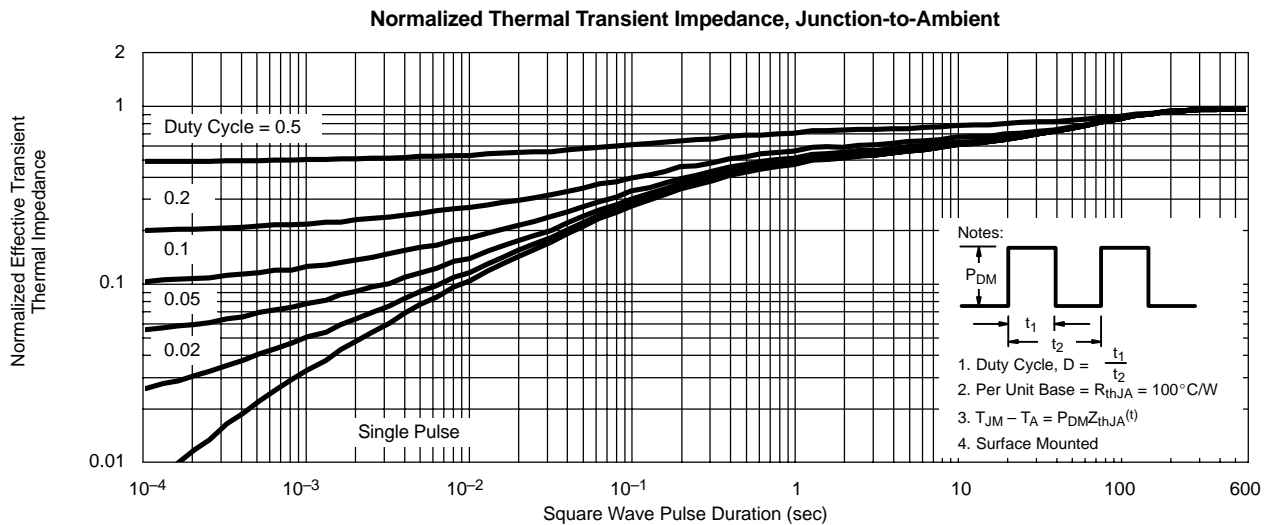
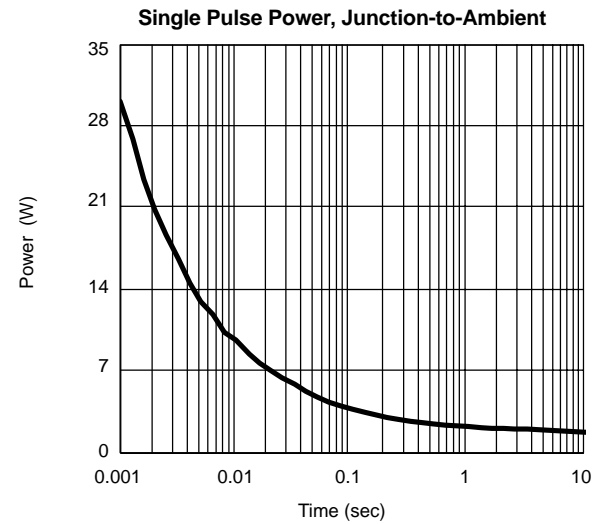
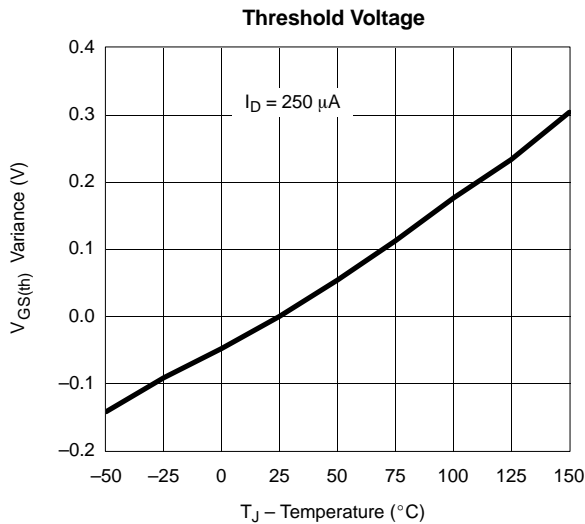
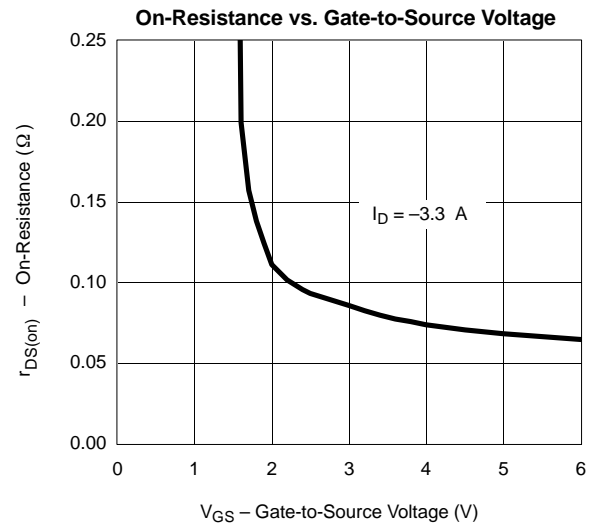
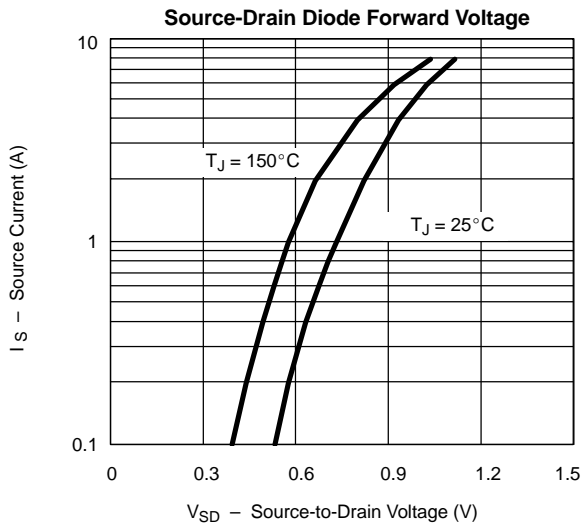
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