



P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY

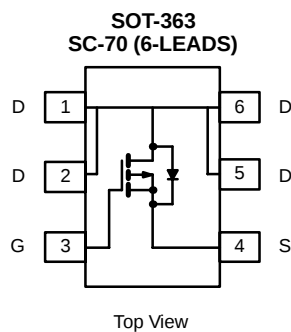
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-30	0.150 @ $V_{GS} = -10$ V	-2.2
	0.260 @ $V_{GS} = -4.5$ V	-1.6

FEATURES

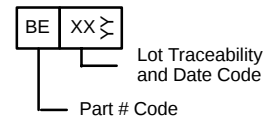
- TrenchFET® Power MOSFETS: 1.8-V Rated
- Thermally Enhanced SC-70 Package

APPLICATIONS

- Load Switches
 - Notebook PCs
 - Servers



Marking Code



Ordering Information: Si1433DH-T1

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	5 secs	Steady State	Unit	
Drain-Source Voltage		V_{DS}	-30		V	
Gate-Source Voltage		V_{GS}	± 20			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-2.2	-1.9	A	
	$T_A = 85^\circ\text{C}$		-1.7	-1.4		
Pulsed Drain Current		I_{DM}	-8			
Continuous Diode Current (Diode Conduction) ^a		I_S	-1.4	-0.9		
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	1.45	0.95	W	
	$T_A = 85^\circ\text{C}$		0.75	0.5		
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}	65	85	$^\circ\text{C/W}$
	Steady State		105	130	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	38	48	

Notes

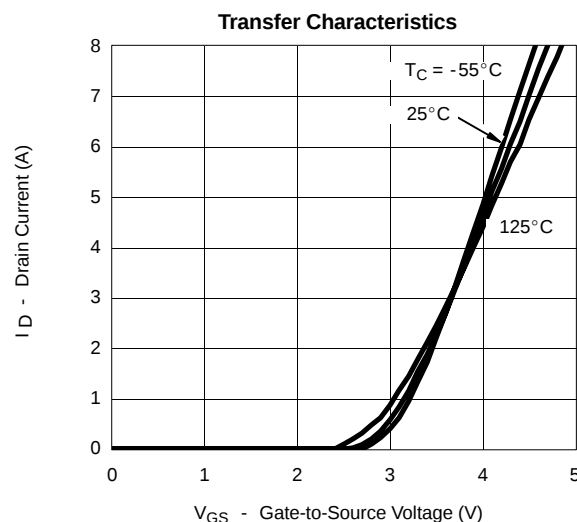
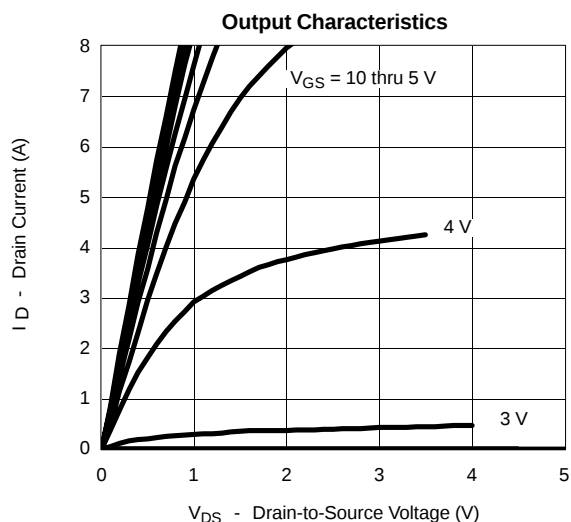
a. Surface Mounted on 1" x 1" FR4 Board.

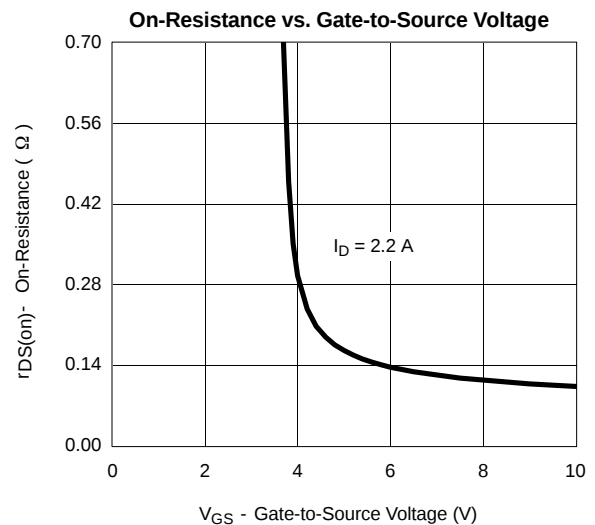
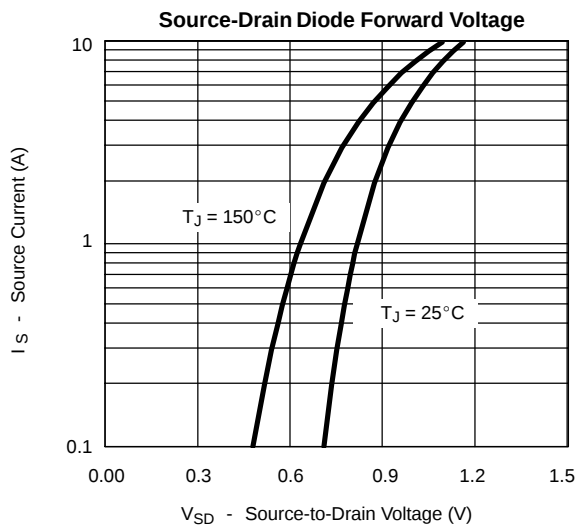
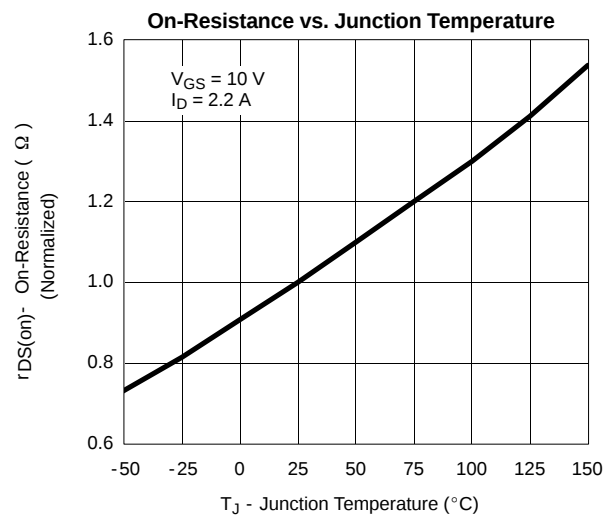
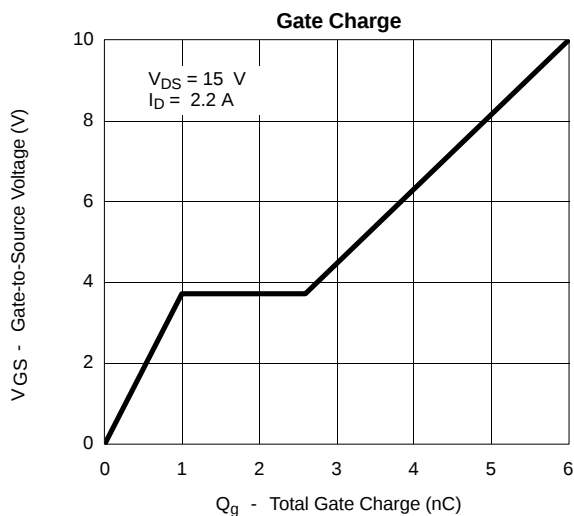
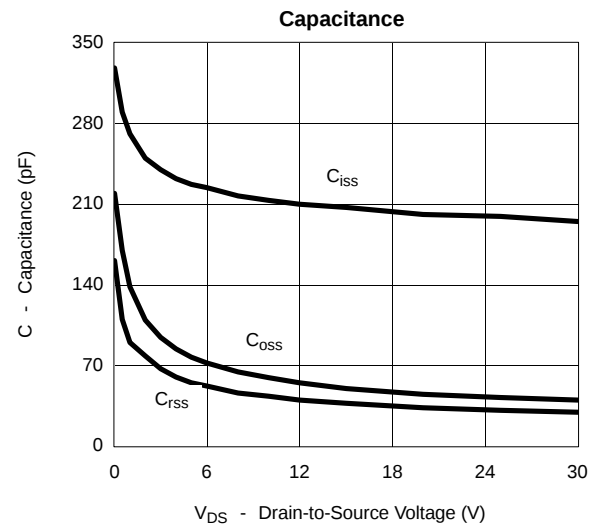
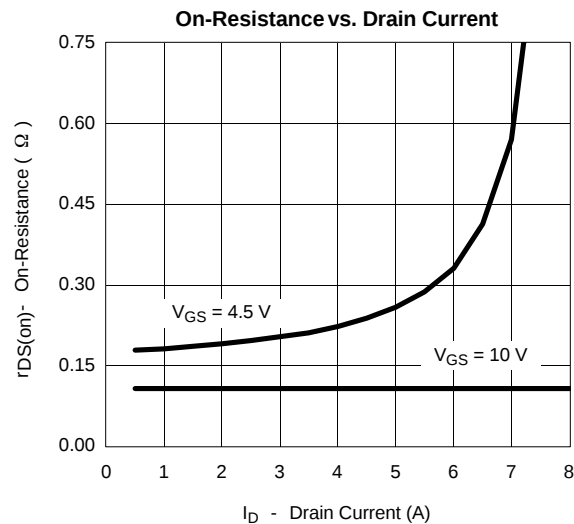
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

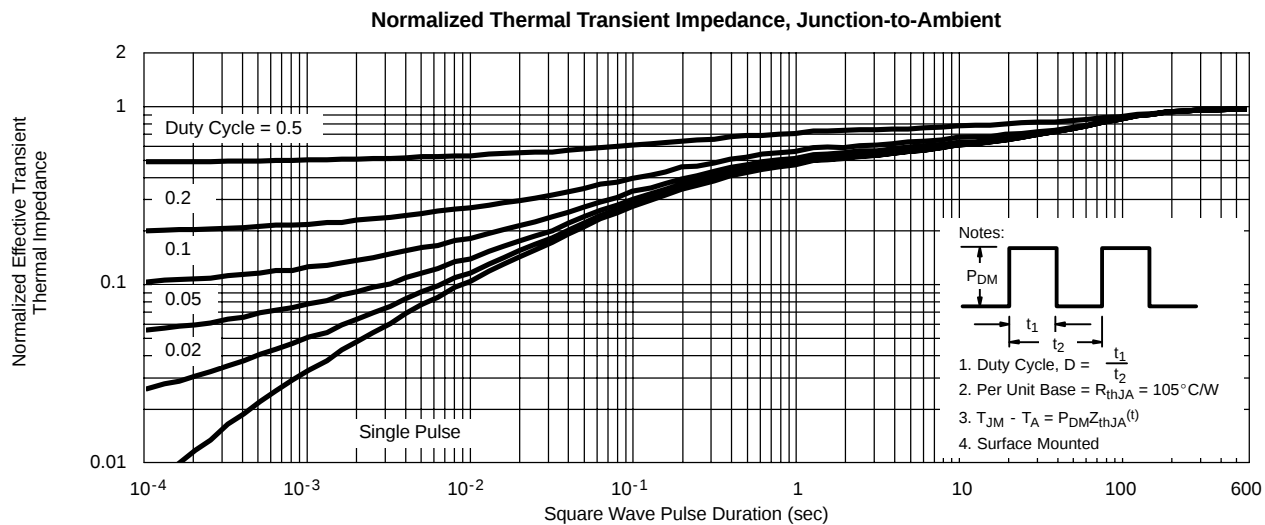
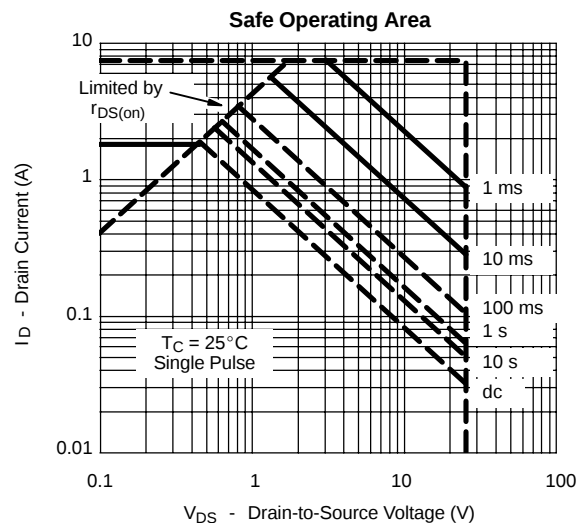
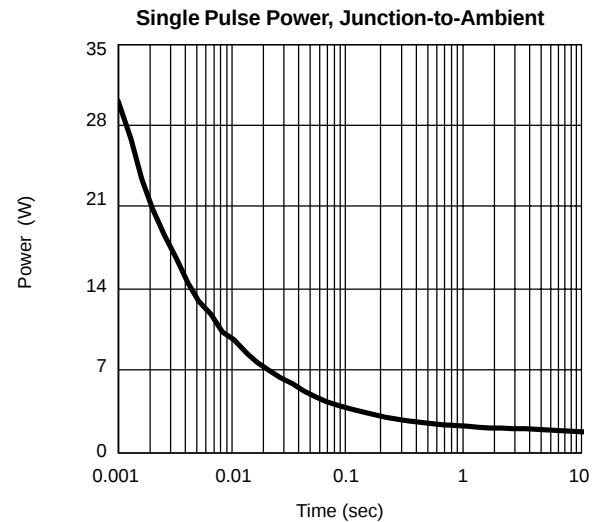
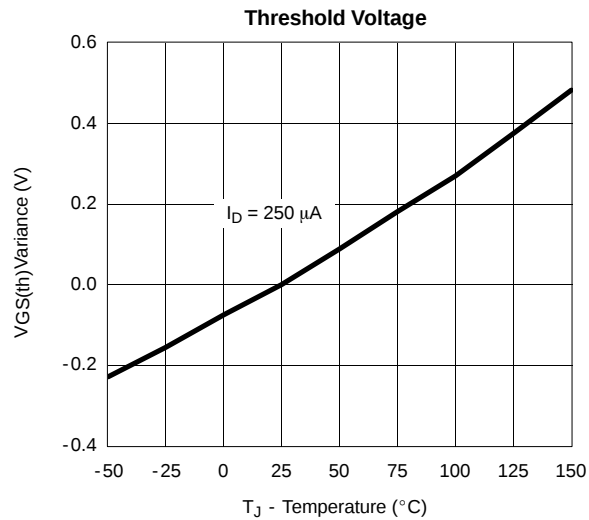
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -100\ \mu\text{A}$	-1		-3	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 8\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16\text{ V}$, $V_{GS} = 0\text{ V}$			-1	μA
		$V_{DS} = -16\text{ V}$, $V_{GS} = 0\text{ V}$, $T_J = 85^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\text{ V}$, $V_{GS} = -4.5\text{ V}$	-4			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\text{ V}$, $I_D = -2.2\text{ A}$		0.120	0.150	Ω
		$V_{GS} = -4.5\text{ V}$, $I_D = -1.6\text{ A}$		0.210	0.260	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10\text{ V}$, $I_D = -2.2\text{ A}$		4		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.2\text{ A}$, $V_{GS} = 0\text{ V}$		-0.85	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -15\text{ V}$, $V_{GS} = -4.5\text{ V}$, $I_D = -2.2\text{ A}$		3.1	5	nC
Gate-Source Charge	Q_{gs}			1.0		
Gate-Drain Charge	Q_{gd}			1.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\text{ V}$, $R_L = 15\ \Omega$ $I_D \cong -1\text{ A}$, $V_{GEN} = -10\text{ V}$, $R_G = 6\ \Omega$		11	17	ns
Rise Time	t_r			17	26	
Turn-Off Delay Time	$t_{d(off)}$			18	27	
Fall Time	t_f			13	20	

Notes

- a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

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