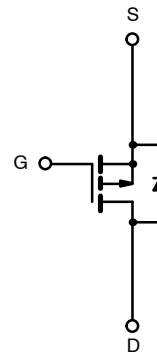
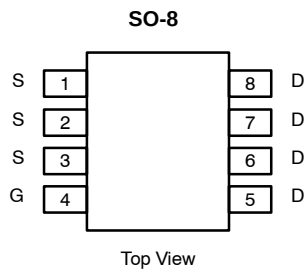




P-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.040 @ $V_{GS} = -4.5$ V	-6.3
	0.055 @ $V_{GS} = -2.5$ V	-5.1



P-Channel MOSFET

Ordering Information: Si9434BDY—E3 (Lead (Pb)-Free)
Si9434BDY-T1—E3 (Lead (Pb)-Free with Tape and Reel)

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

Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	−20		V
Gate-Source Voltage		V _{GS}	± 8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	−6.3	−4.5	A
	T _A = 70°C		−5.0	−3.6	
Pulsed Drain Current		I _{DM}	−20		
Continuous Source Current (Diode Conduction) ^a		I _S	−2.3	−1.2	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	2.5	1.3	W
	T _A = 70°C		1.6	0.8	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	−55 to 150		°C

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	45	50	$^\circ\text{C/W}$
	Steady State		80	95	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	20	24	

Notes

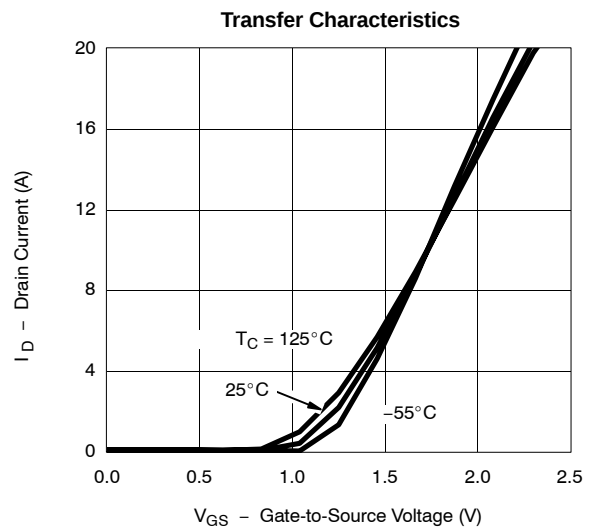
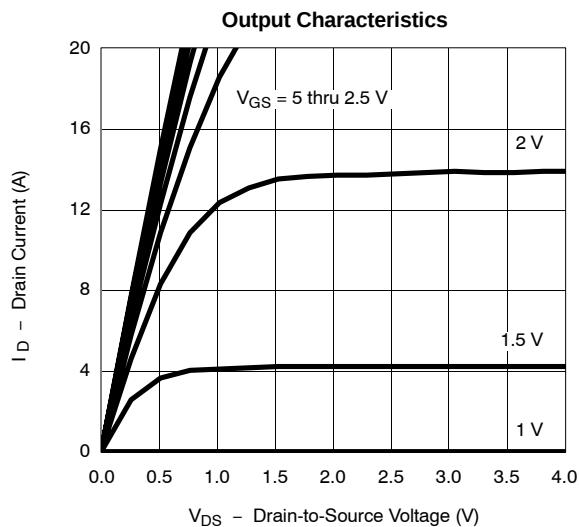
a. Surface Mounted on FR4 Board, $t \leq 10$ sec.

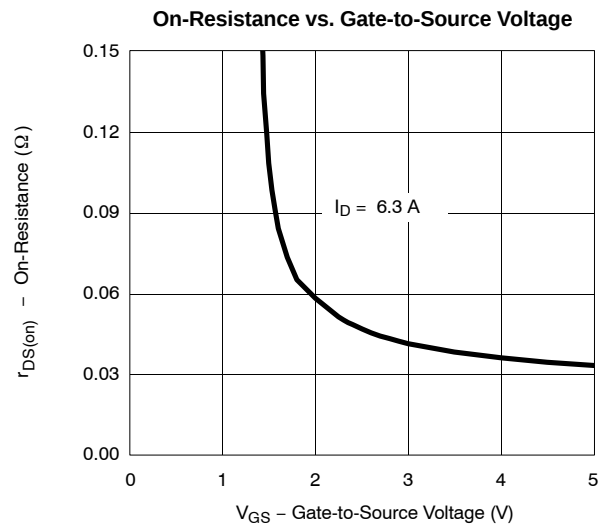
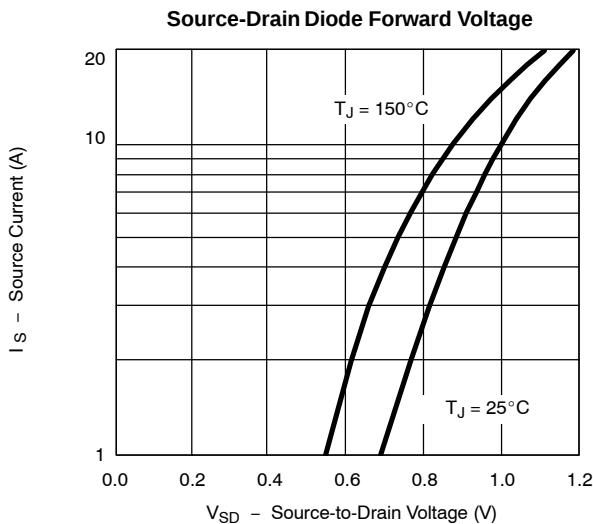
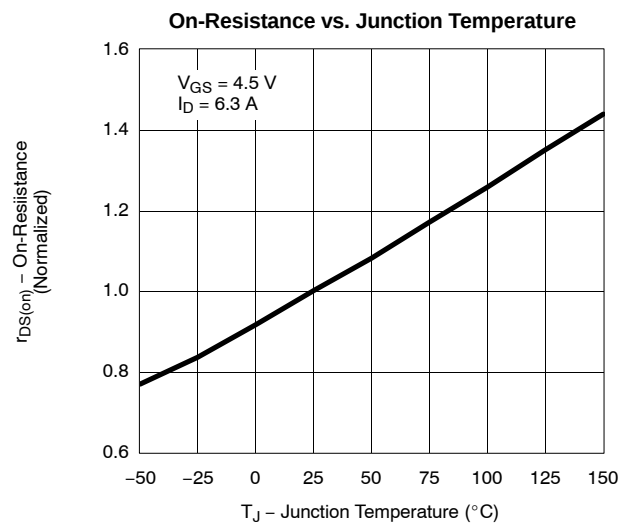
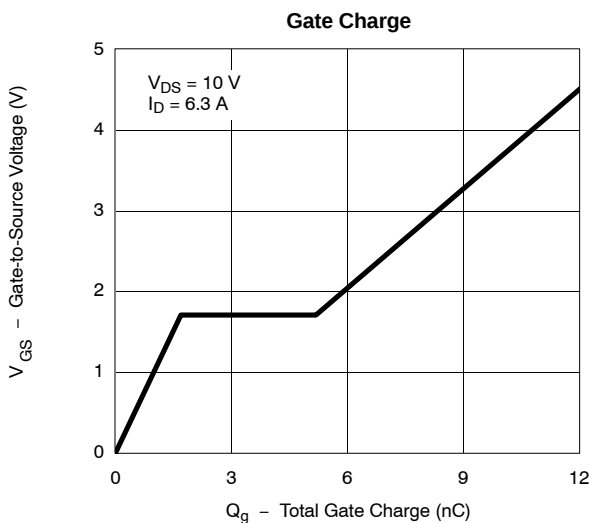
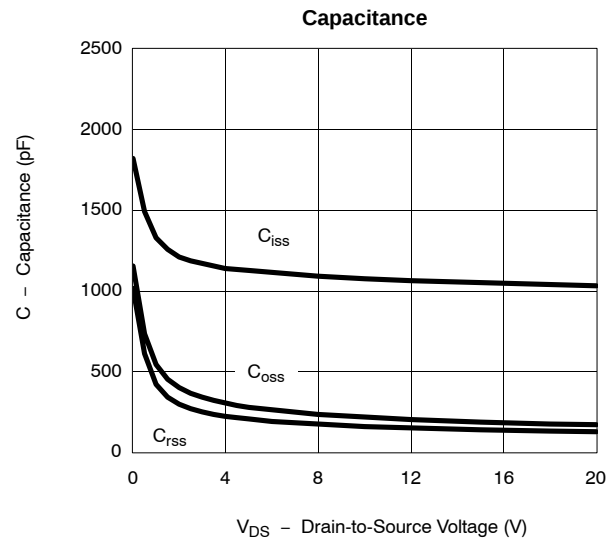
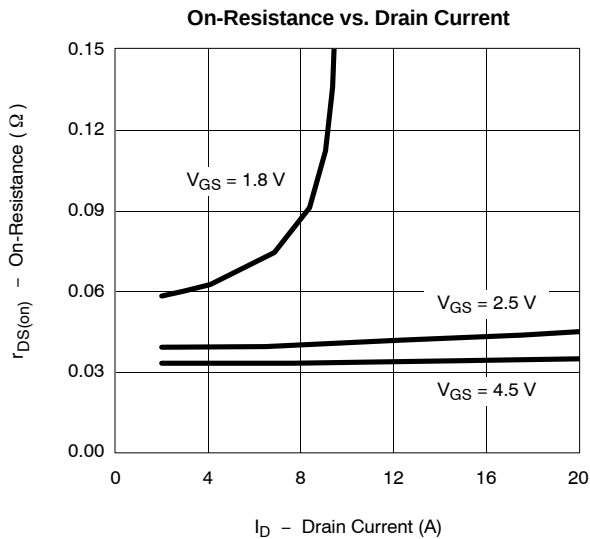
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$	-0.45		-1.5	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}	$V_{DS} = -20\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -20\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 70^\circ\text{C}$			-5	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	-20			A
		$V_{DS} \leq -5\ \text{V}$, $V_{GS} = -2.5\ \text{V}$	-5			
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}$, $I_D = -6.3\ \text{A}$		0.033	0.040	Ω
		$V_{GS} = -2.5\ \text{V}$, $I_D = -5.1\ \text{A}$		0.044	0.055	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -9\ \text{V}$, $I_D = -6.3\ \text{A}$		10		S
Diode Forward Voltage ^b	V_{SD}	$I_S = -2.3\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.8	-1.2	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}$, $V_{GS} = -4.5\ \text{V}$, $I_D = -6.3\ \text{A}$		12	18	nC
Gate-Source Charge	Q_{gs}			1.7		
Gate-Drain Charge	Q_{gd}			3.5		
Gate Resistance	R_g			7		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}$, $R_L = 10\ \Omega$ $I_D \approx -1\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_g = 6\ \Omega$		15	25	ns
Rise Time	t_r			45	75	
Turn-Off Delay Time	$t_{d(off)}$			80	130	
Fall Time	t_f			60	100	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.3\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		40	70	

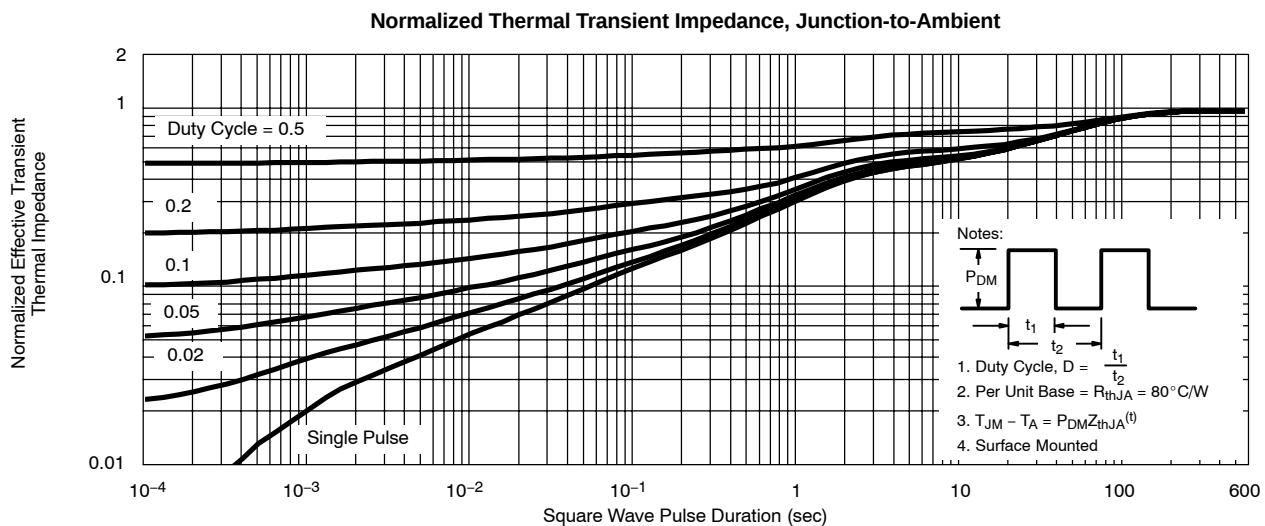
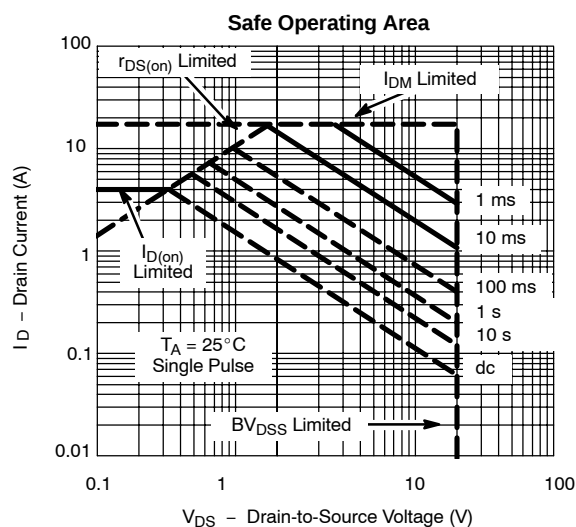
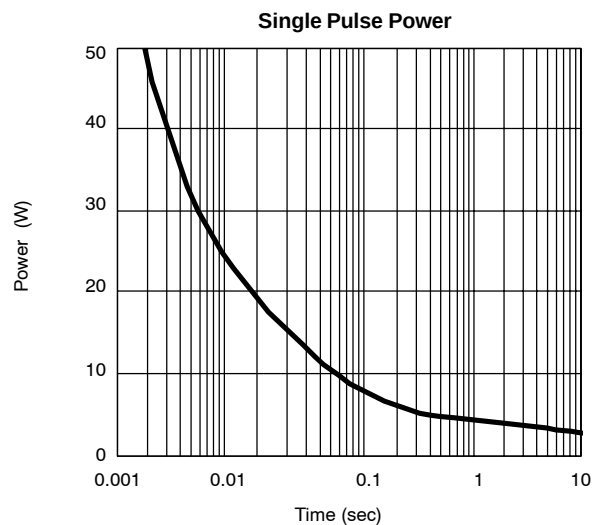
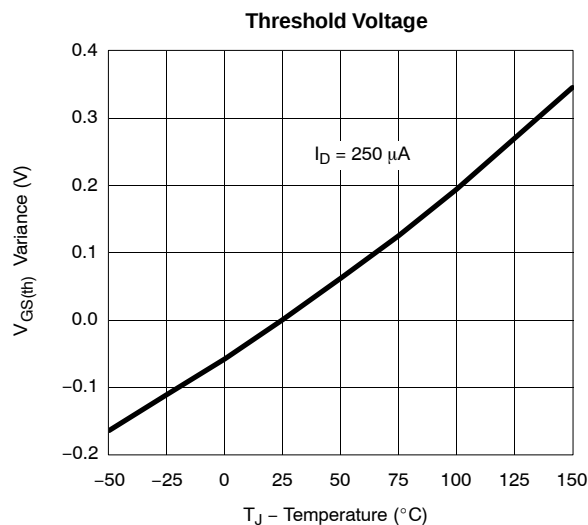
Notes

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

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

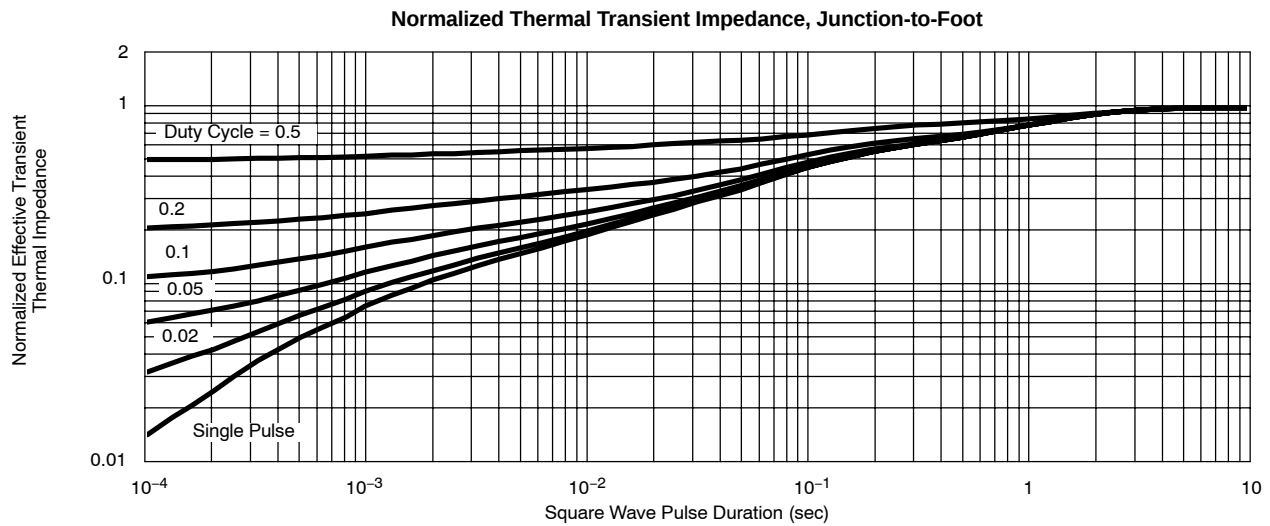
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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