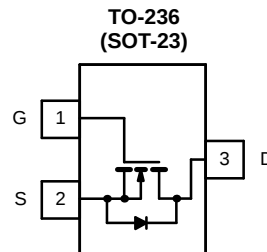




N-Channel 200-V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
200	7 @ $V_{GS} = 10$ V	± 0.28



Top View
Si2320DS (D0)*
*Marking Code

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

Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		V _{DS}	± 200		V
Gate-Source Voltage		V _{GS}	± 20		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	± 0.28	± 0.22	A
	T _A = 70°C		± 0.22	± 0.17	
Pulsed Drain Current ^b		I _{DM}	± 0.5		
Avalanche Current ^b	L = 0.1 mH	I _{AS}	± 0.5		
Single Avalanche Energy		E _{AS}	0.013		mJ
Continuous Source Current (Diode Conduction) ^a		I _S	± 1		A
Power Dissipation ^a	T _A = 25°C	P _D	1.25	0.75	W
	T _A = 70°C		0.80	0.48	
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	$t \leq 5$ sec	R_{thJA}	75	100	$^\circ\text{C/W}$
	Steady State		120	166	
Maximum Junction-to-Foot	Steady State	R_{thJF}	40	50	

Notes

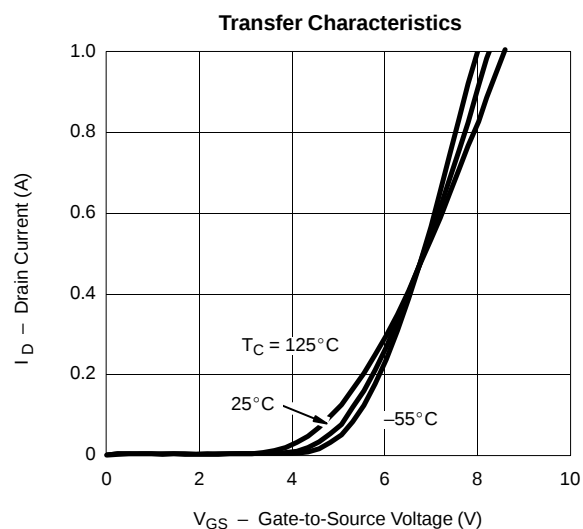
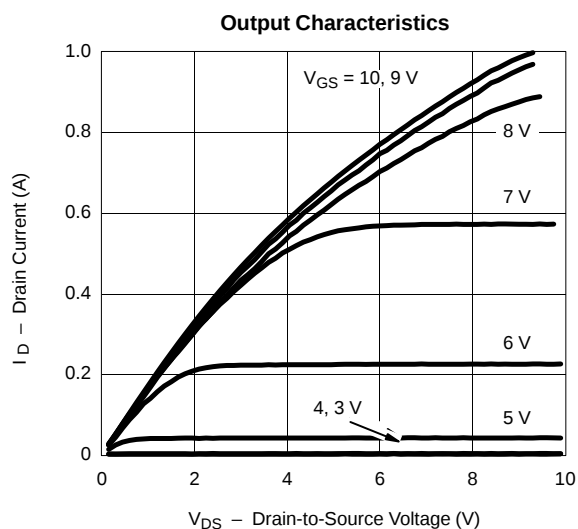
- a. Surface Mounted on 1" x 1" FR4 Board.
b. Pulse width limited by maximum junction temperature

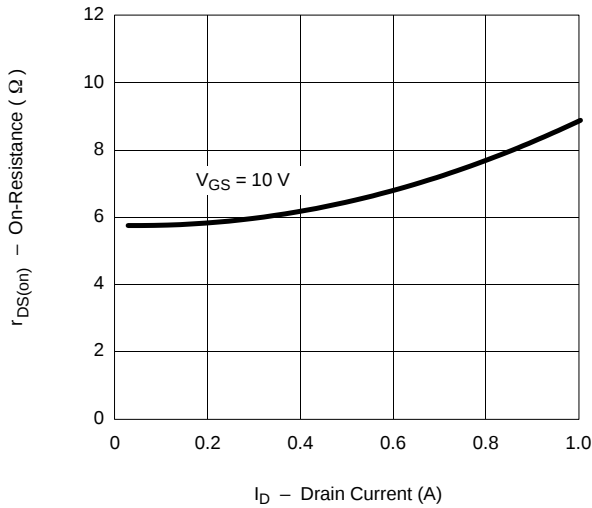
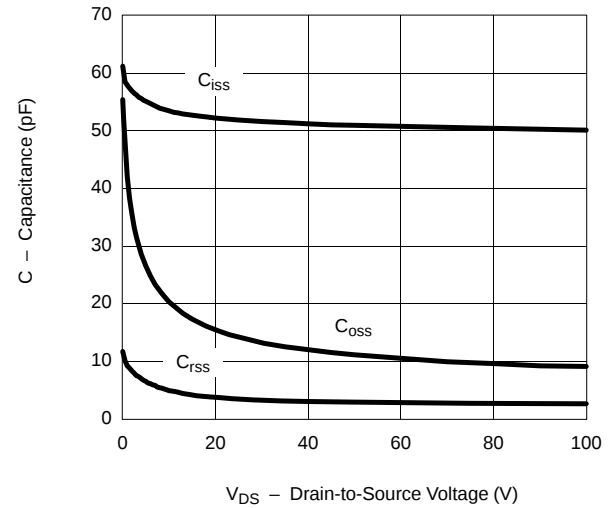
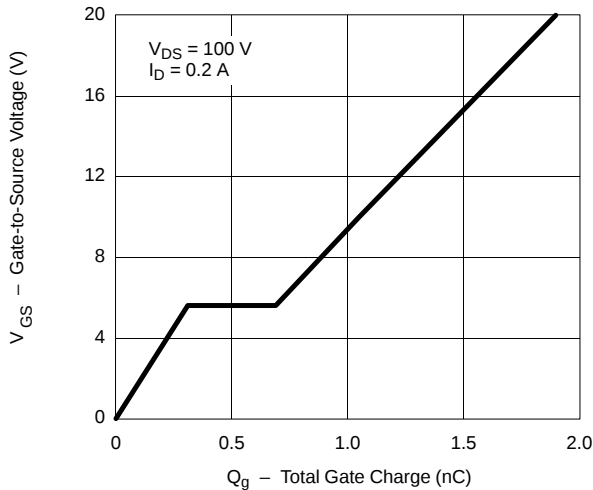
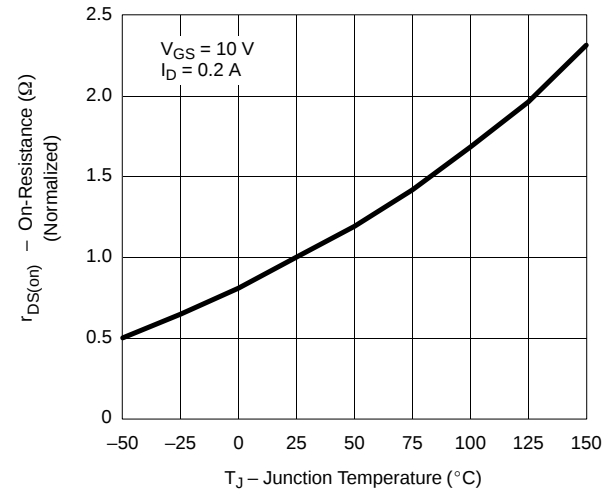
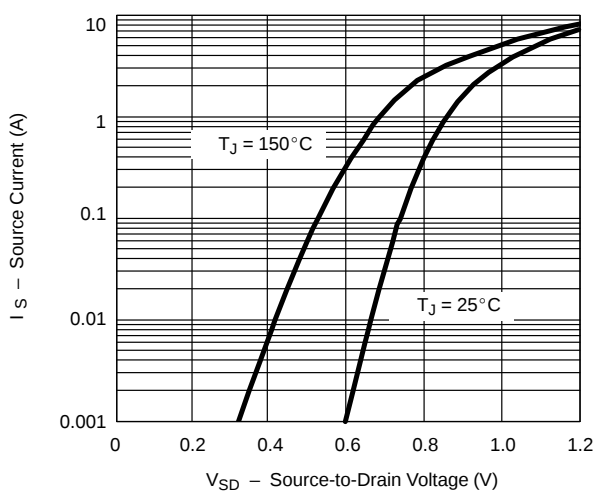
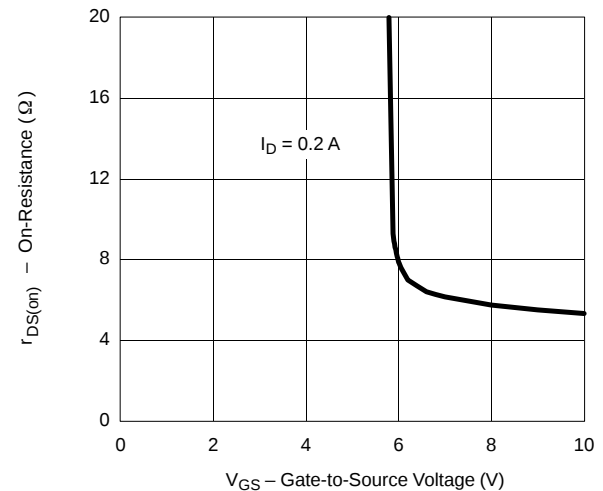
SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

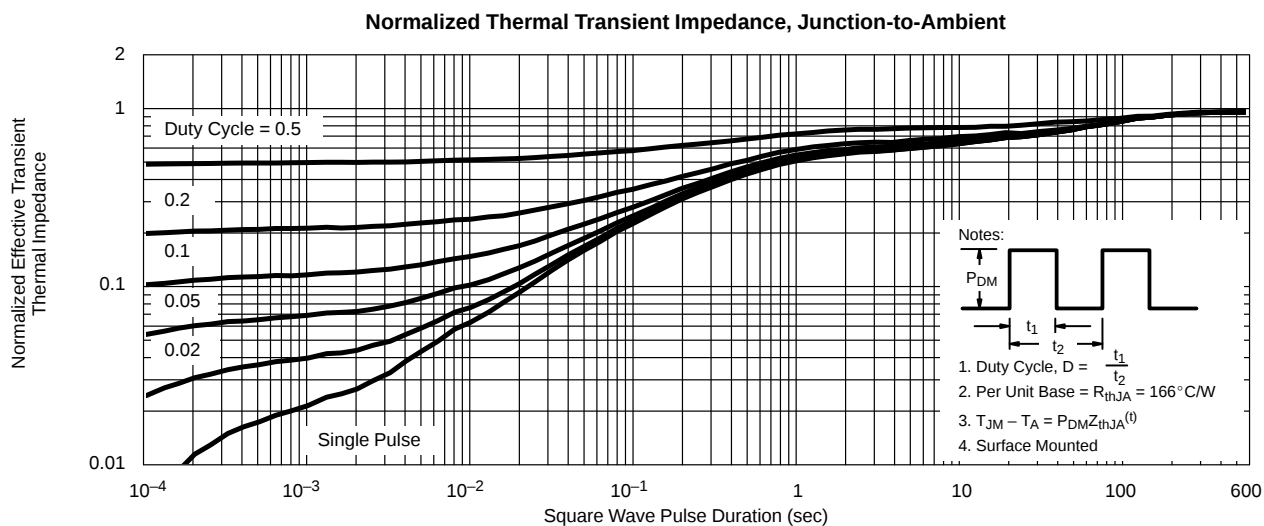
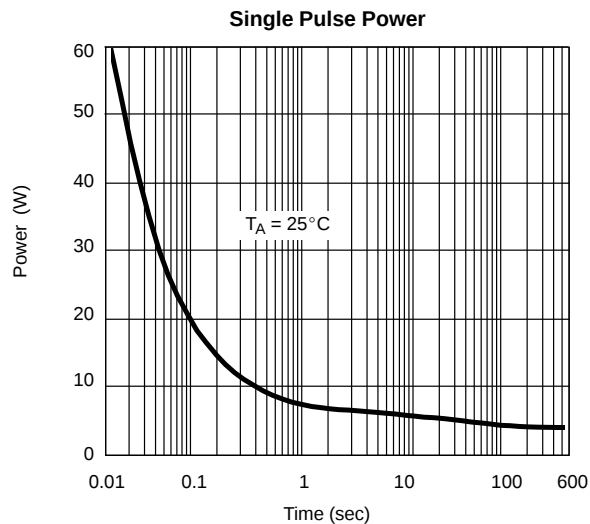
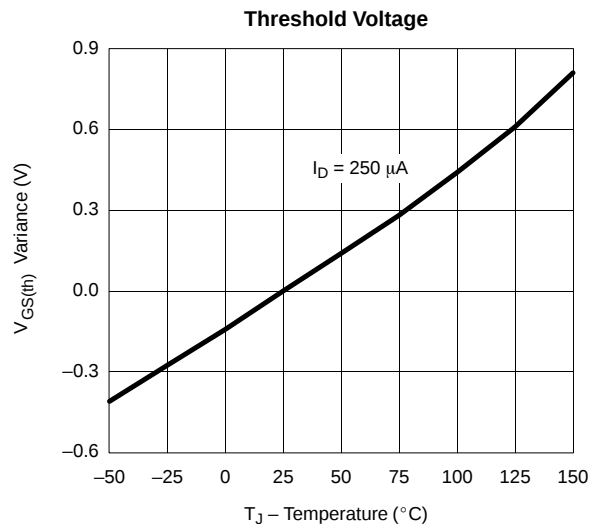
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	200			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	2			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 160\text{ V}, V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 160\text{ V}, V_{GS} = 0\text{ V}, T_J = 70^\circ\text{C}$			75	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 15\text{ V}, V_{GS} = 10\text{ V}$	0.5			A
Drain-Source On-Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 0.2\text{ A}$		5.8	7	Ω
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 0.4\text{ A}$		13		S
Diode Forward Voltage	V_{SD}	$I_S = 1\text{ A}, V_{GS} = 0\text{ V}$			1.2	V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = 100\text{ V}, V_{GS} = 10\text{ V}, I_D = 0.2\text{ A}$		1.1	1.6	nC
Gate-Source Charge	Q_{gs}			0.31		
Gate-Drain Charge	Q_{gd}			0.375		
Switching						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 100\text{ V}, R_L = 500\text{ }\Omega$ $I_D \cong 0.2\text{ A}, V_{GEN} = 10\text{ V}, R_G = 6\text{ }\Omega$		6	10	ns
Rise Time	t_r			9	15	
Turn-Off Delay Time	$t_{d(off)}$			9	15	
Fall-Time	t_f			65	100	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		105	160	ns

Notes

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

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)****On-Resistance vs. Drain Current****Capacitance****Gate Charge****On-Resistance vs. Junction Temperature****Source-Drain Diode Forward Voltage****On-Resistance vs. Gate-to-Source Voltage**

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)




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