

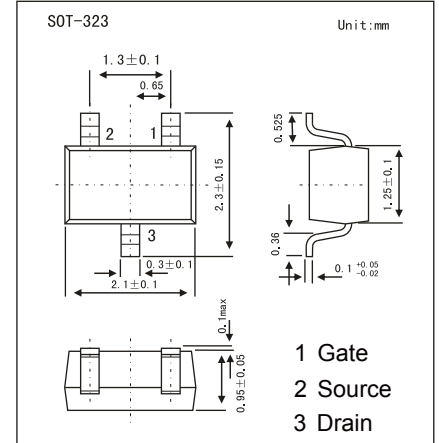
SOT-323 Plastic-Encapsulate MOSFETS

Features

- $V_{DS} (V) = 60V$
- $I_D = 0.34 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 1.6 \Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 2.5 \Omega (V_{GS} = 4.5V)$
- ESD Protected
- N-Channel MOSFET

MECHANICAL DATA

- Case style: SOT-323 molded plastic
- Mounting position: any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Continuous Drain Current (Steady State)	I_D	$T_a = 25^\circ C$	310	mA
		$T_a = 85^\circ C$	220	
Continuous Drain Current ($t < 5 s$)	I_D	$T_a = 25^\circ C$	340	mA
		$T_a = 85^\circ C$	240	
Pulsed Drain Current ($t_p = 10 \mu s$)	I_{DM}	1.4	A	
Gate-Source ESD Rating	ESD	900	V	
Power Dissipation	P_D	Steady State	280	mW
		$t < 5 s$	330	
Thermal Resistance Junction-to-Ambient	R_{thJA}	450	$^\circ C/W$	
Thermal Resistance Junction-to-Case	R_{thJC}	375	$^\circ C/W$	
Lead Temperature for Soldering Purposes	TL	260	$^\circ C$	
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{stg}	-55 to 150	$^\circ C$	

Mosfet Electrical Characteristics $T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	$I_D = 250 \mu A, V_{GS} = 0V$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V, T_J = 25^\circ C$			1	μA
		$V_{DS} = 60V, V_{GS} = 0V, T_J = 125^\circ C$			500	
		$V_{DS} = 50V, V_{GS} = 0V, T_J = 25^\circ C$			0.1	
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 10	μA
		$V_{DS} = 0V, V_{GS} = \pm 10V$			± 450	
		$V_{DS} = 0V, V_{GS} = \pm 5V$			± 150	
Gate Threshold Voltage (Note.1)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1		2.5	V
Static Drain-Source On-Resistance (Note.1)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 500mA$		1.19	1.6	Ω
		$V_{GS} = 4.5V, I_D = 200mA$		1.33	2.5	
On State Drain Current	$I_{D(on)}$	$V_{GS} = 4.5V, V_{DS} = 5V$	30			A
Forward Transconductance (Note.1)	g_{FS}	$V_{DS} = 5V, I_D = 200mA$		80		mS
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$		24.5		pF
Output Capacitance	C_{oss}			4.2		
Reverse Transfer Capacitance	C_{rss}			2.2		
Total Gate Charge	Q_g			0.7		
Threshold Gate Charge	Q_{gT}	$V_{GS} = 4.5V, V_{DS} = 10V, I_D = 200mA$		0.1		nC
Gate Source Charge	Q_{gs}			0.3		
Gate Drain Charge	Q_{gd}			0.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 25V, I_D = 500mA, R_G = 25 \Omega$ (Note.2)		12.2		ns
Turn-On Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			55.8		
Turn-Off Fall Time	t_f			29		
Maximum Body-Diode Continuous Current	I_S				0.25	A
Diode Forward Voltage	V_{SD}	$I_S = 0.2A, V_{GS} = 0V, T_J = 25^\circ C$		0.8	1.2	V
		$I_S = 0.2A, V_{GS} = 0V, T_J = 85^\circ C$		0.7		

Note.1: Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Note.2: Switching characteristics are independent of operating junction temperatures

Marking

Marking	71
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RATINGS AND CHARACTERISTIC CURVES

Typical Characteristics

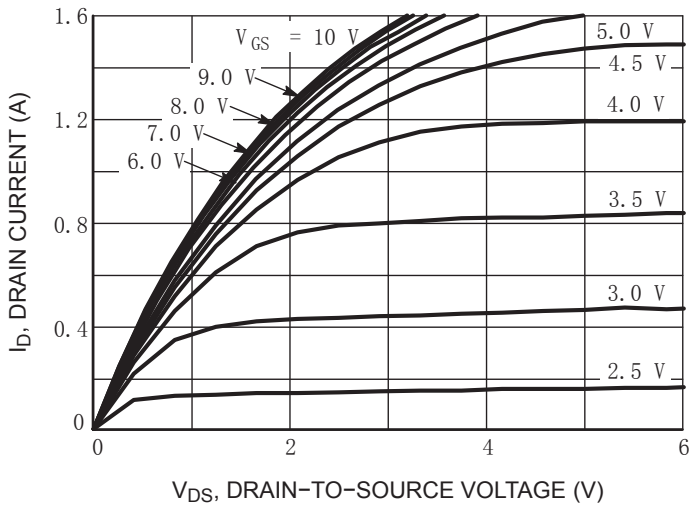


Figure 1. On-Region Characteristics

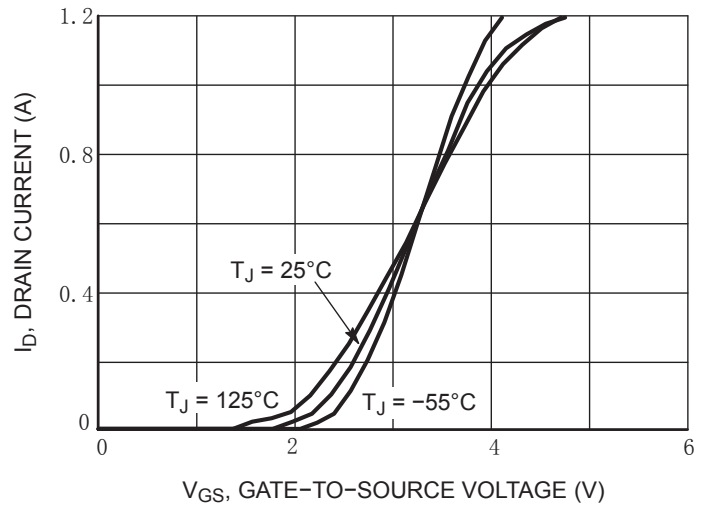


Figure 2. Transfer Characteristics

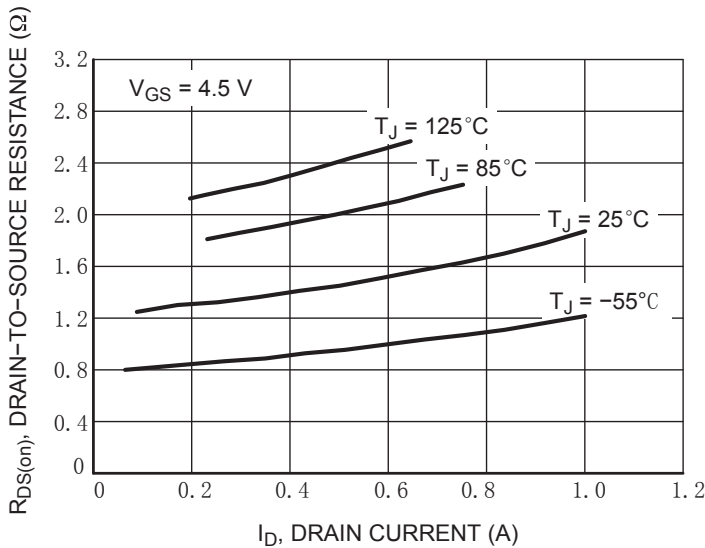


Figure 3. On-Resistance vs. Drain Current and Temperature

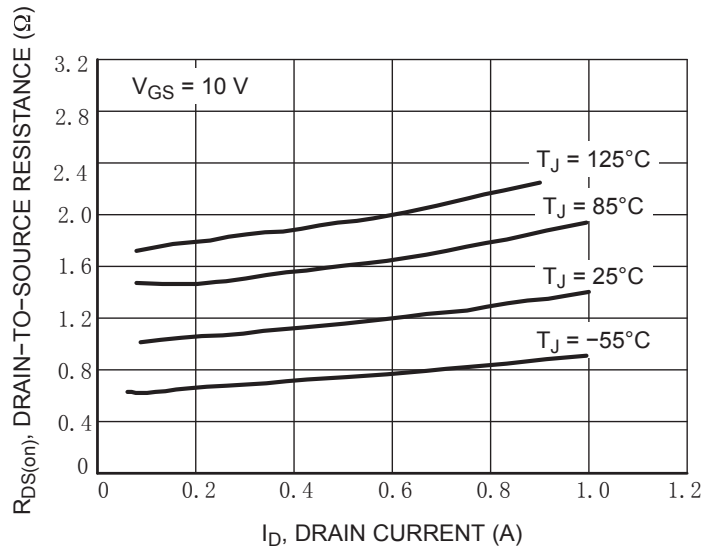


Figure 4. On-Resistance vs. Drain Current and Temperature

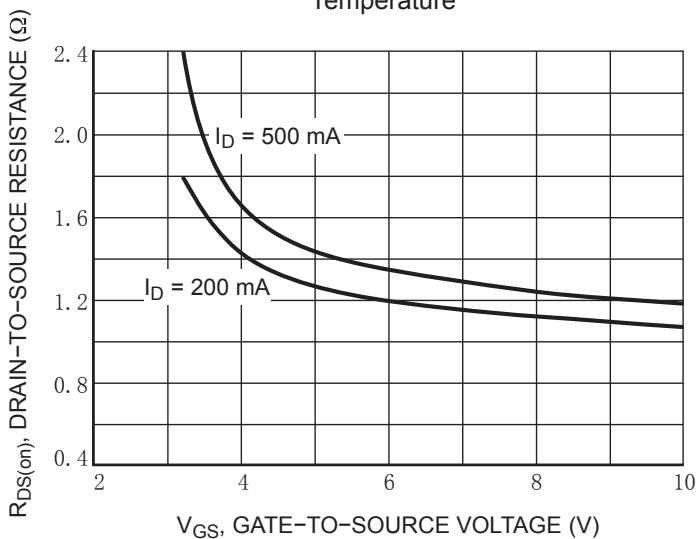


Figure 5. On-Resistance vs. Gate-to-Source Voltage

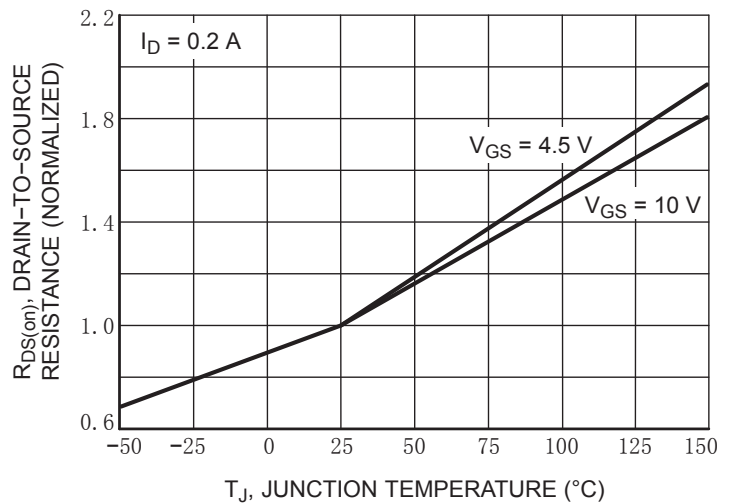


Figure 6. On-Resistance Variation with Temperature



RATINGS AND CHARACTERISTIC CURVES

■ Typical Characteristics

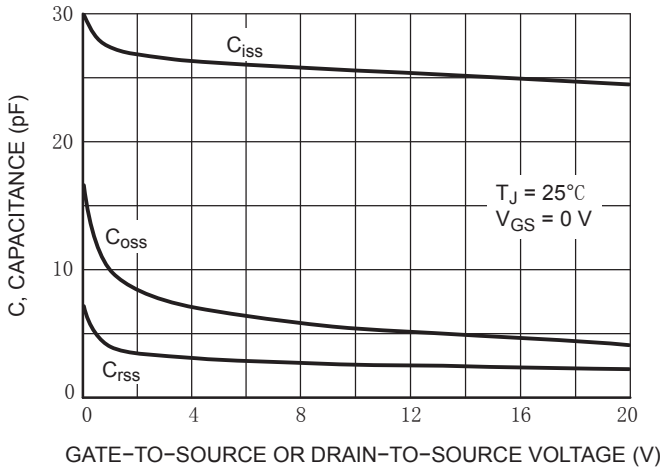


Figure 7. Capacitance Variation

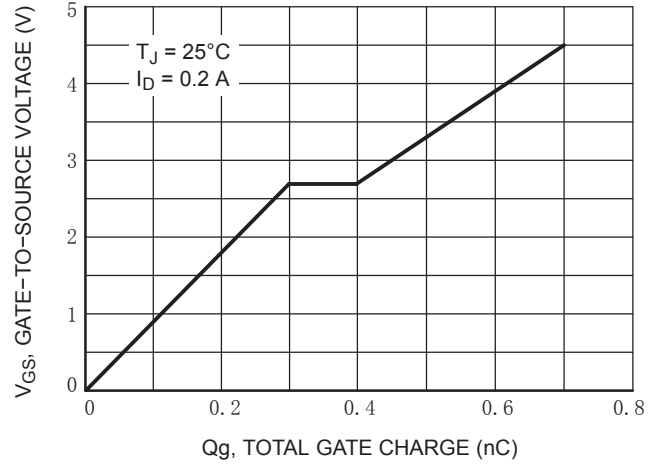


Figure 8. Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

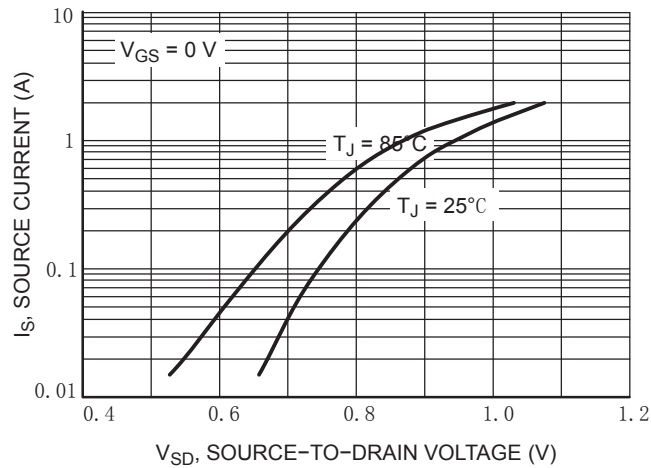


Figure 9. Diode Forward Voltage vs. Current