

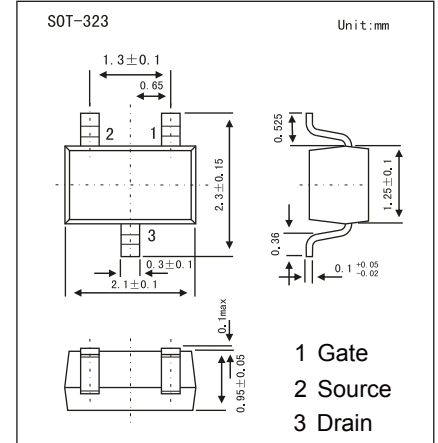
## SOT-323 Plastic-Encapsulate MOSFETS

### 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	$V_{GS}$	$\pm 20$	V
Continuous Drain Current (Steady State)	$I_D$	$T_a = 25^\circ C$	310
		$T_a = 85^\circ C$	220
Continuous Drain Current ( $t < 5 s$ )	$I_D$	$T_a = 25^\circ C$	340
		$T_a = 85^\circ C$	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
		$t < 5 s$	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	$\mu A$
		$V_{DS} = 60V, V_{GS} = 0V, T_J = 125^\circ C$			500	$\mu A$
		$V_{DS} = 50V, V_{GS} = 0V, T_J = 25^\circ C$			0.1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 10$	$\mu A$
		$V_{DS} = 0V, V_{GS} = \pm 10V$			$\pm 450$	nA
		$V_{DS} = 0V, V_{GS} = \pm 5V$			$\pm 150$	nA
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	$\Omega$
		$V_{GS} = 4.5V, I_D = 200mA$		1.33	2.5	$\Omega$
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		pF
Reverse Transfer Capacitance	$C_{rss}$			2.2		pF
Total Gate Charge	$Q_g$			0.7		nC
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		nC
Gate Drain Charge	$Q_{gd}$			0.1		nC
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		ns
Turn-Off Delay Time	$t_{d(off)}$			55.8		ns
Turn-Off Fall Time	$t_f$			29		ns
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		V

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

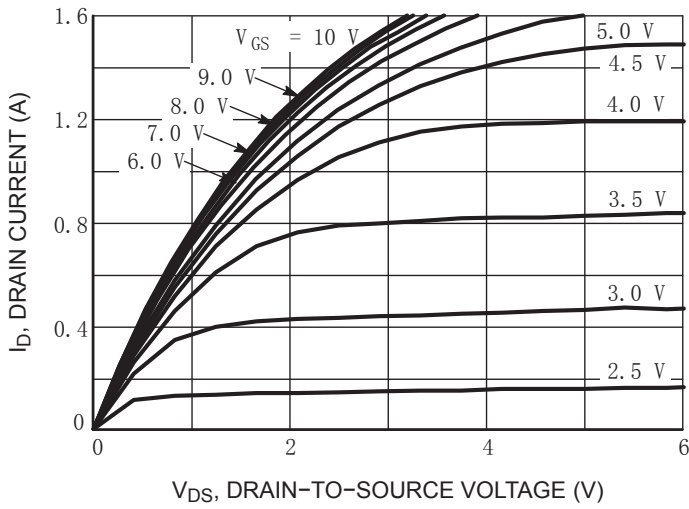


Figure 1. On-Region Characteristics

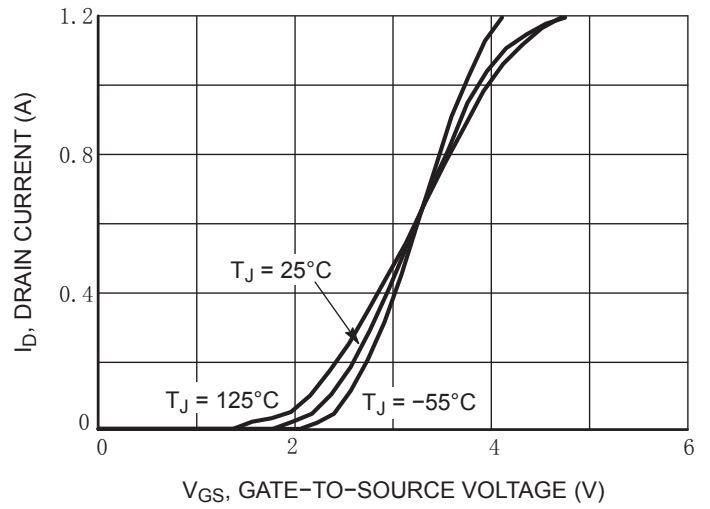


Figure 2. Transfer Characteristics

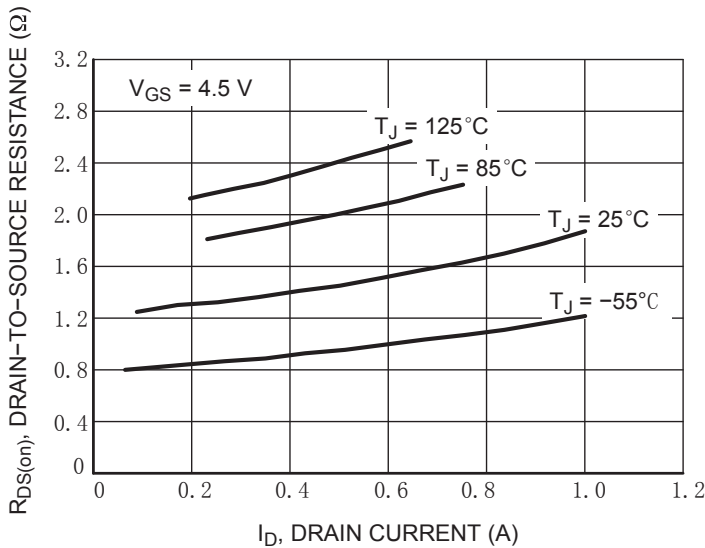


Figure 3. On-Resistance vs. Drain Current and Temperature

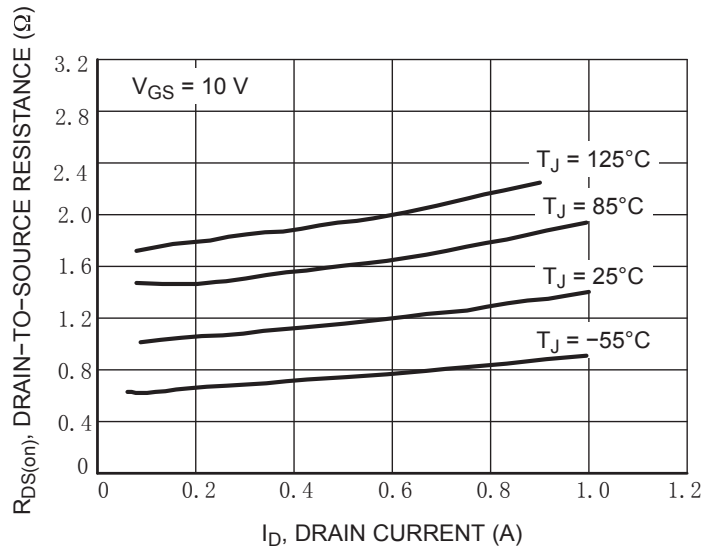


Figure 4. On-Resistance vs. Drain Current and Temperature

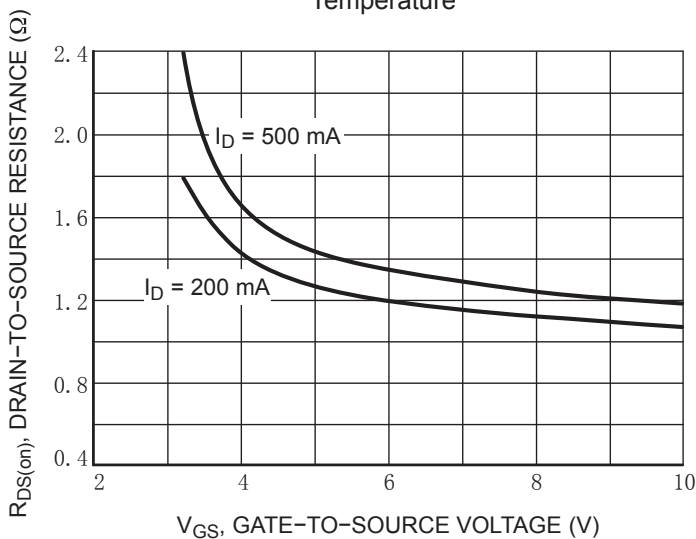


Figure 5. On-Resistance vs. Gate-to-Source Voltage

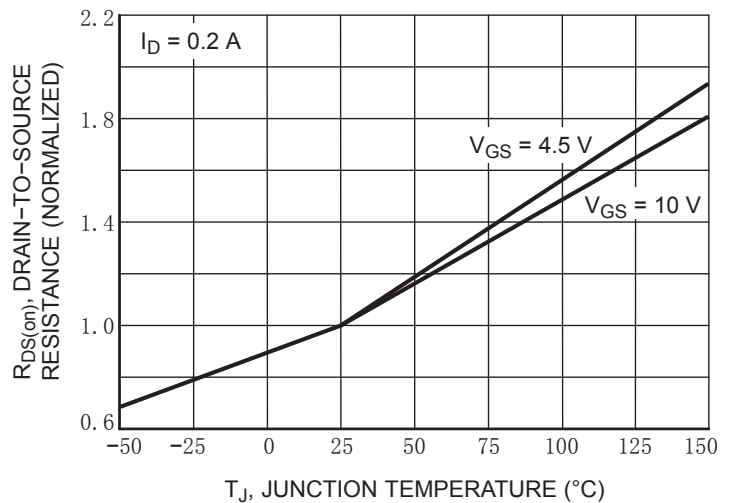


Figure 6. On-Resistance Variation with Temperature

# RATINGS AND CHARACTERISTIC CURVES

## ■ Typical Characteristics

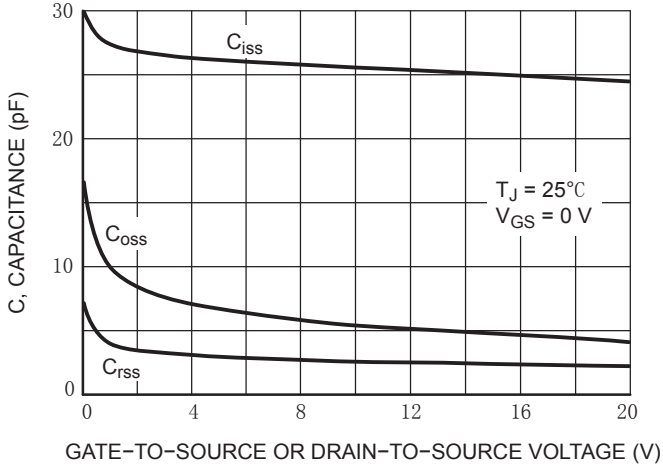


Figure 7. Capacitance Variation

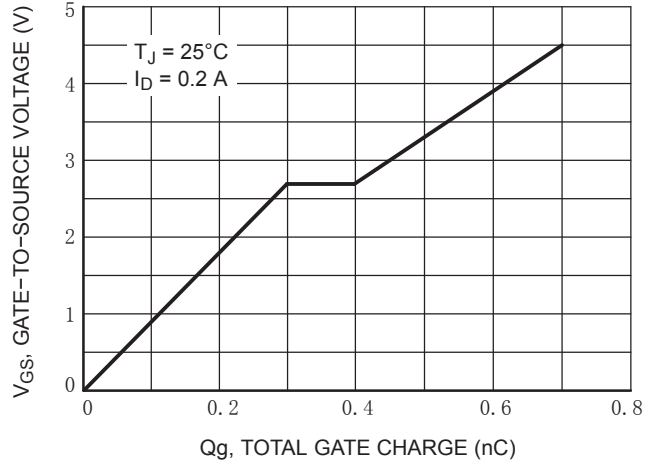


Figure 8. Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

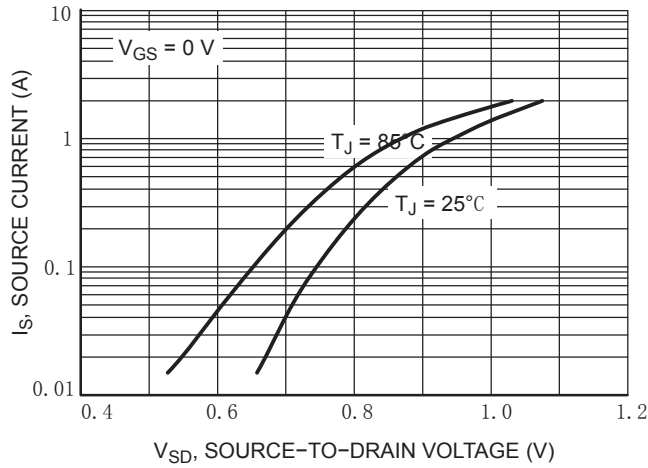


Figure 9. Diode Forward Voltage vs. Current