Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	50	V
Gate-Source Voltage	V_{GSS}	±12	V
Drain Current (Note 6) Continuous	I_D	160	mA
Pulsed Drain Current (Note 6)	I_{DM}	560	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 6)	P_D	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	50	—	—	V	V_{GS} = 0V, I_D = 250µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	µA	V_{DS} = 50V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	1.0 5.0	µA	V_{GS} = ±8V, V_{DS} = 0V V_{GS} = ±12V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	0.7	0.8	1.0	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	3.1	4	Ω	V_{GS} = 4V, I_D = 100mA
		—	4	5		V_{GS} = 2.5V, I_D = 80mA
Forward Transconductance	g_{FS}	180	—	—	mS	V_{DS} = 10V, I_D = 100mA, f = 1.0kHz
Diode Forward Voltage	V_{SD}	—	0.70	1.3	V	V_{GS} = 0V, I_S = 100mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	25	—	pF	V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	5	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	2.1	—	pF	
Gate Resistance	R_G	—	500	—	Ω	f = 1MHz, V_{GS} = 0V, V_{DS} = 0V
Total Gate Charge (V_{GS} = 4V)	Q_G	—	295	—	pC	V_{DS} = 10V, I_D = 100mA
Total Gate Charge (V_{GS} = 8V)	Q_G	—	636	—	pC	
Gate-Source Charge	Q_{GS}	—	72	—	pC	
Gate-Drain Charge	Q_{GD}	—	18	—	pC	
Turn-On Delay Time	$t_{D(ON)}$	—	6.0	—	ns	V_{DD} = 10V, V_{GS} = 4V, R_G = 25Ω, I_D = 100mA
Turn-On Rise Time	t_R	—	4.4	—	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	—	23.4	—	ns	
Turn-Off Fall Time	t_F	—	11.0	—	ns	

Notes: 6. Device mounted on FR-4 PCB, with minimum recommended pad layout.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

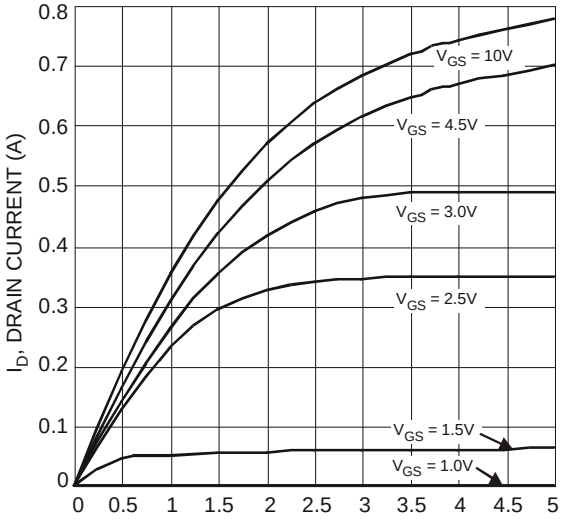


Fig. 1 Typical Output Characteristics

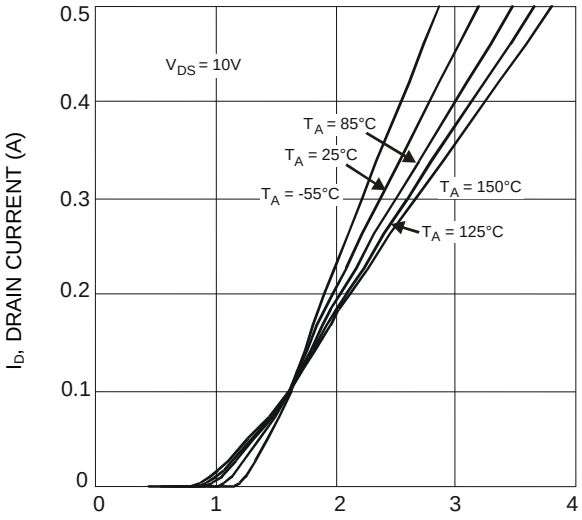


Fig. 2 Typical Transfer Characteristics

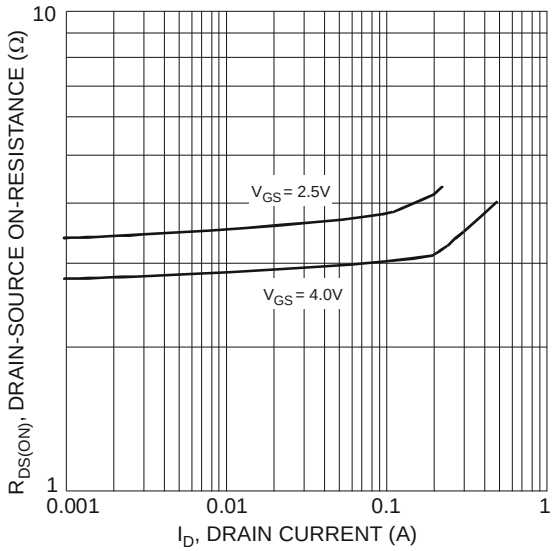


Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

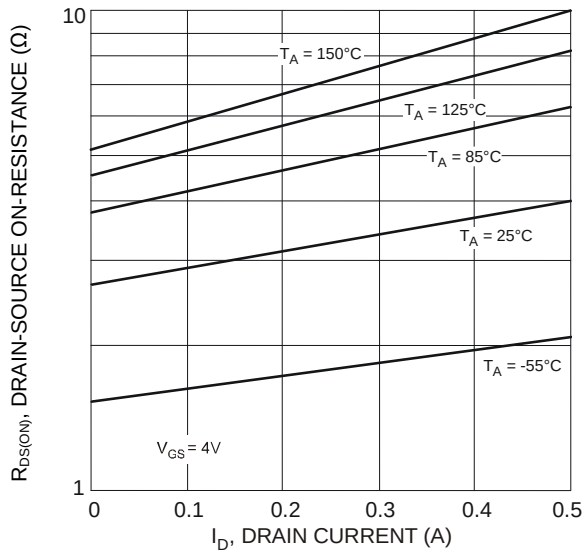


Fig. 4 Typical Drain-Source On-Resistance
vs. Drain Current and Temperature

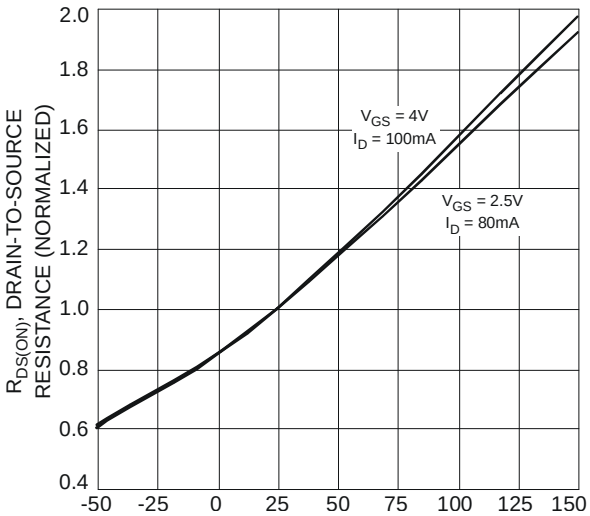


Fig. 5 On-Resistance Variation with Temperature

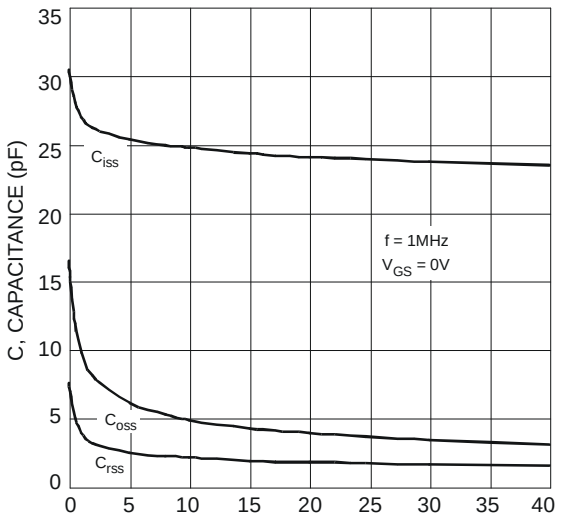


Fig. 6 Typical Capacitance

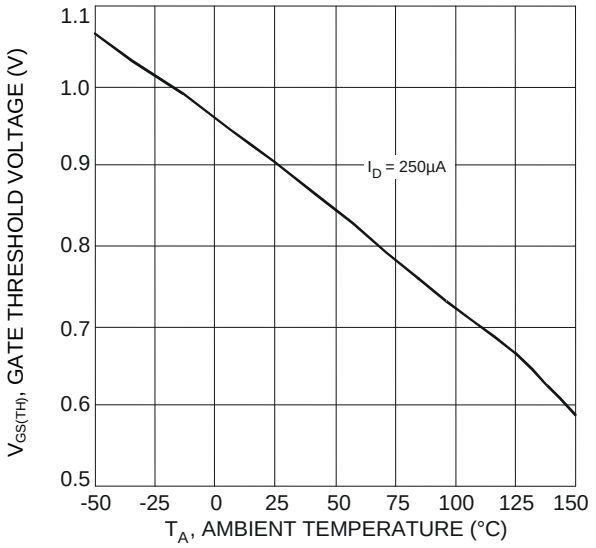


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

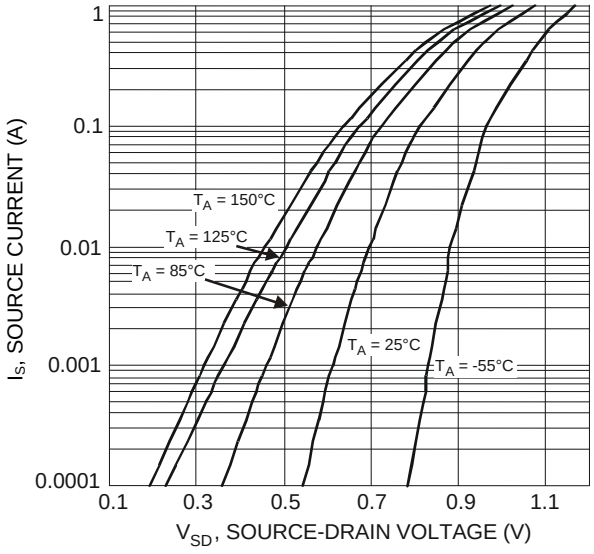


Fig. 8 Diode Forward Voltage vs. Current

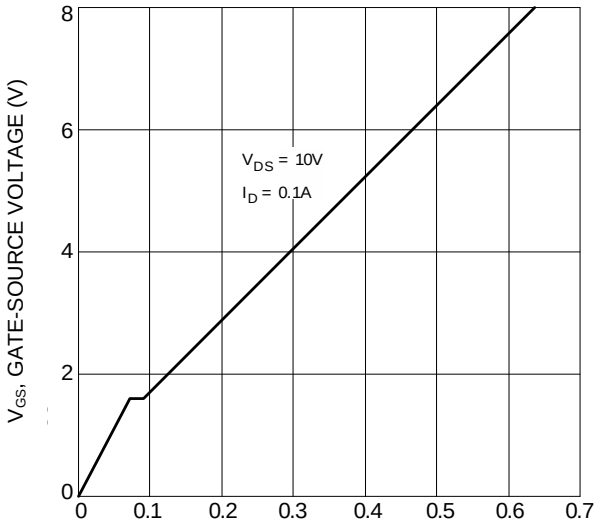


Fig. 9 Gate Charge

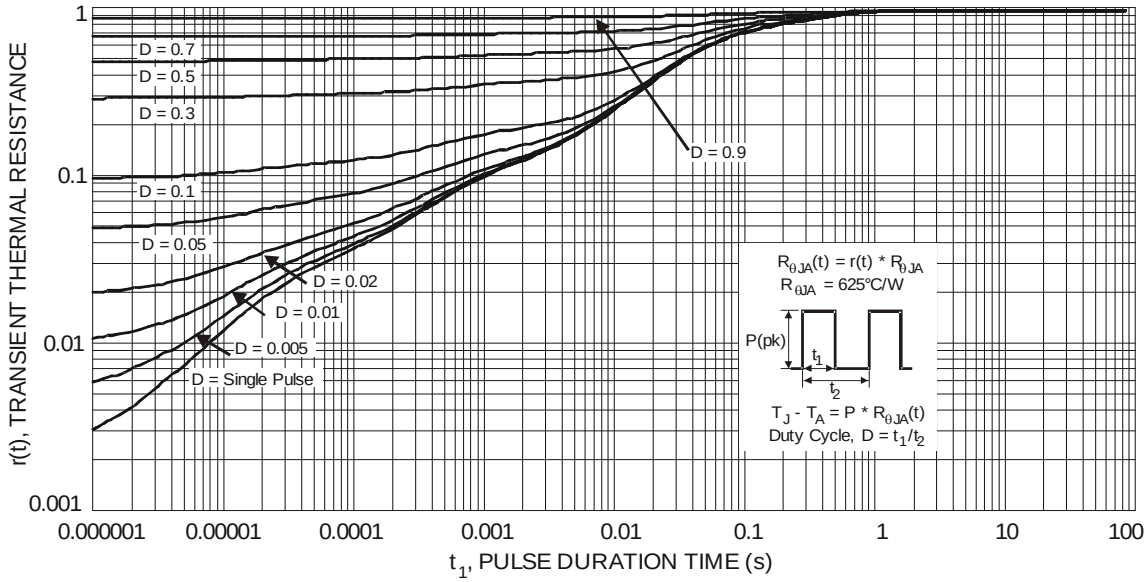
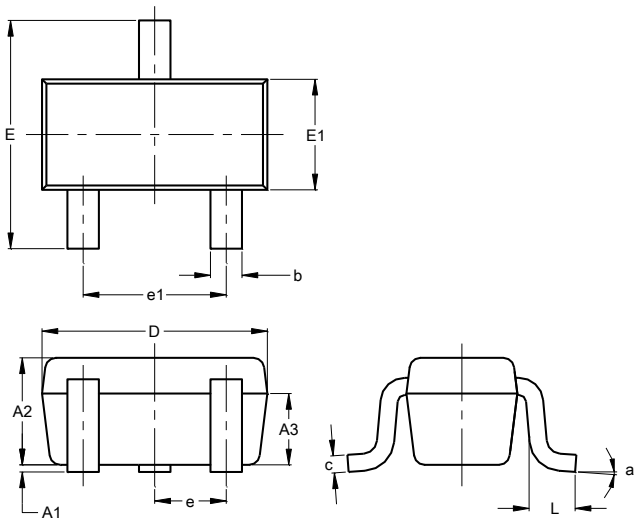


Fig. 10 Transient Thermal Response

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT523

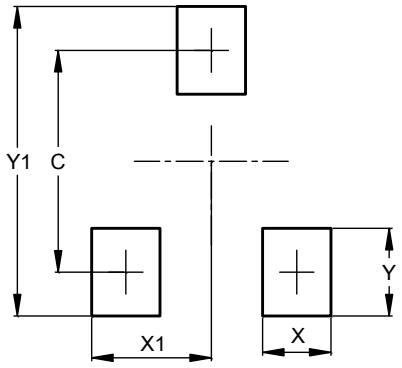


SOT523			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.60	0.80	0.75
A3	0.45	0.65	0.50
b	0.15	0.30	0.22
c	0.10	0.20	0.12
D	1.50	1.70	1.60
E	1.45	1.75	1.60
E1	0.75	0.85	0.80
e	0.50 BSC		
e1	0.90	1.10	1.00
L	0.20	0.40	0.33
a	0°	--	8°
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT523



Dimensions	Value (in mm)
C	1.29
X	0.40
X1	0.70
Y	0.51
Y1	1.80

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