

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	20	V
Gate-Source Voltage			V _{GSS}	±12	V
Continuous Drain Current (Note 6) V _{GS} = 4.5V	Steady State	T _A = +25°C T _A = +70°C	I _D	2.8 2.3	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	3.1 2.6	A
Continuous Drain Current (Note 6) V _{GS} = 1.8V	Steady State	T _A = +25°C T _A = +70°C	I _D	2.2 1.7	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	2.4 1.9	A
Pulsed Drain Current (10us Pulse, Duty Cycle=1%)			I _{DM}	30	A
Maximum Body Diode Forward Current (Note 5)			I _S	1.2	A

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)		P _D	0.43	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	296	°C/W
	t < 10s		252	°C/W
Total Power Dissipation (Note 6)		P _D	0.7	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{θJA}	178	°C/W
	t < 10s		151	°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}	20	—	—	V	V _{GS} = 0V, I _D = 1mA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±1	μA	V _{GS} = ±10V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.35	—	1.0	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	52	56	mΩ	V _{GS} = 4.5V, I _D = 2A
		—	59	65		V _{GS} = 2.5V, I _D = 2A
		—	60	93		V _{GS} = 1.8V, I _D = 1A
		—	75	140		V _{GS} = 1.5V, I _D = 0.5A
		—	—	—		V _{GS} = 1.5V, I _D = 0.5A
Forward Transfer Admittance	Y _{fs}	—	7	—	S	V _{DS} = 5V, I _D = 3.8A
Diode Forward Voltage	V _{SD}	—	0.7	1.0	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	400.0	—	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	73.8	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	65.6	—	pF	
Total Gate Charge	Q _g	—	5.4	—	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 6A
Gate-Source Charge	Q _{gs}	—	0.7	—	nC	
Gate-Drain Charge	Q _{gd}	—	1.4	—	nC	
Turn-On Delay Time	t _{D(ON)}	—	3.5	—	ns	V _{DD} = 10V, V _{GS} = 5V, R _L = 1.7Ω, R _G = 6Ω
Turn-On Rise Time	t _R	—	9.7	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	23.8	—	ns	
Turn-Off Fall Time	t _F	—	7.2	—	ns	

- Notes: 5. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.
 6. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1 inch square copper plate.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to product testing.

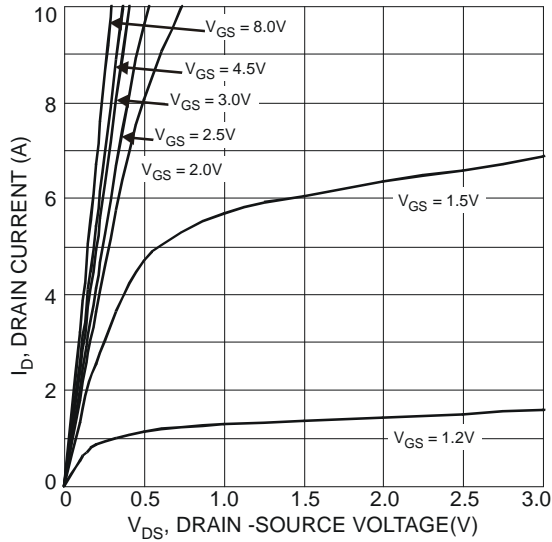


Fig. 1 Typical Output Characteristics

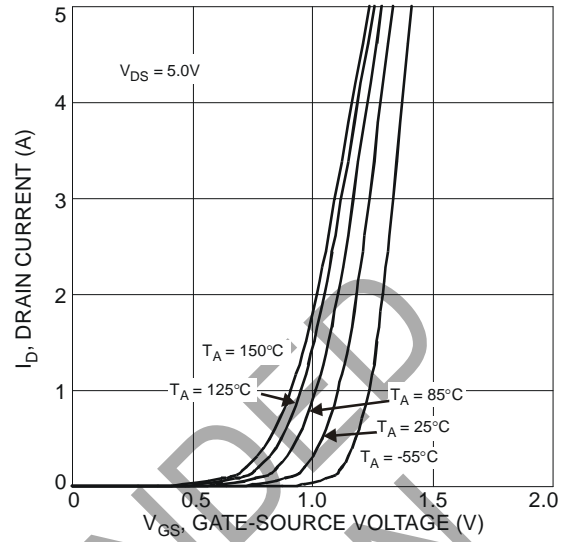


Fig. 2 Typical Transfer Characteristics

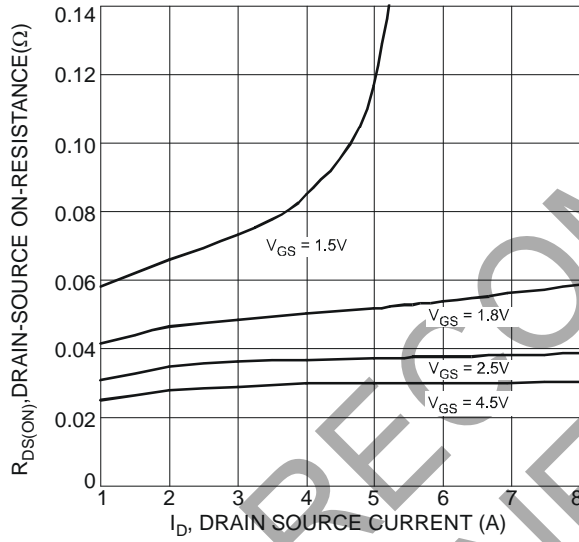


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

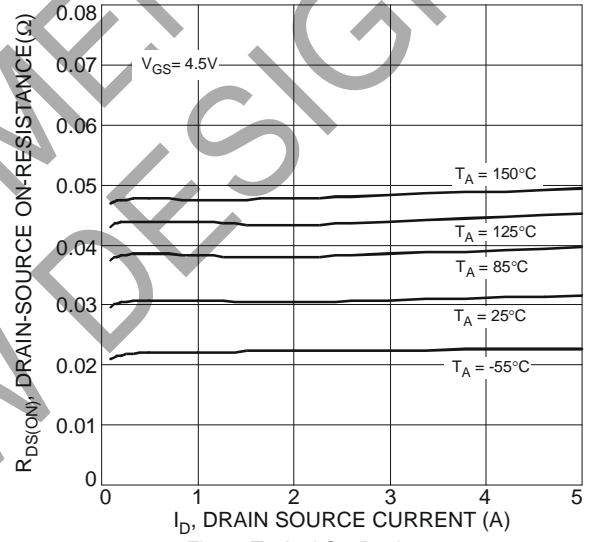


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

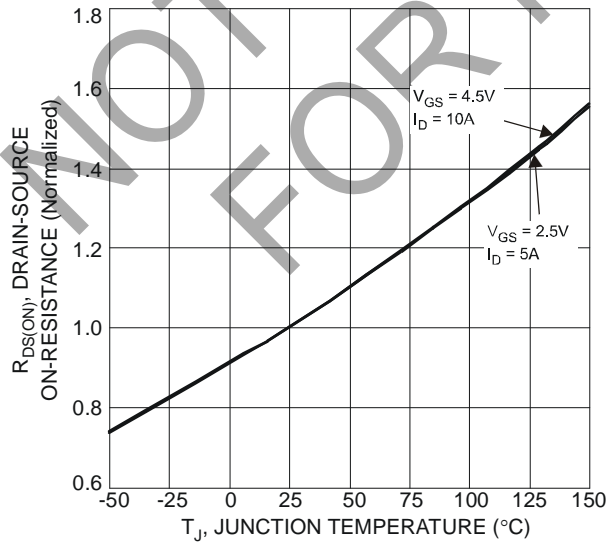


Fig. 5 On-Resistance Variation with Temperature

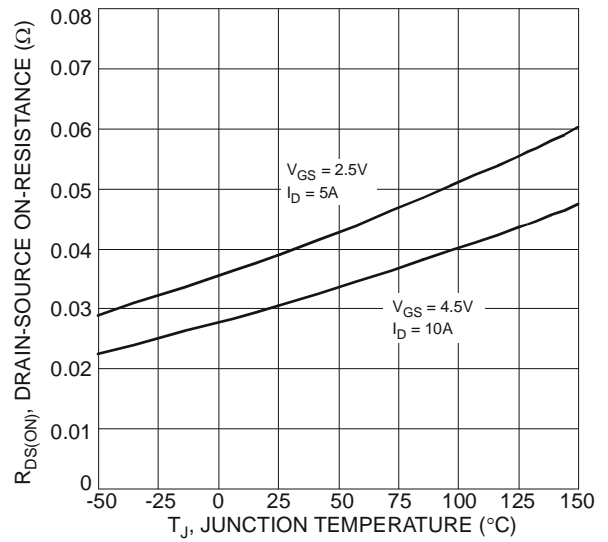


Fig. 6 On-Resistance Variation with Temperature

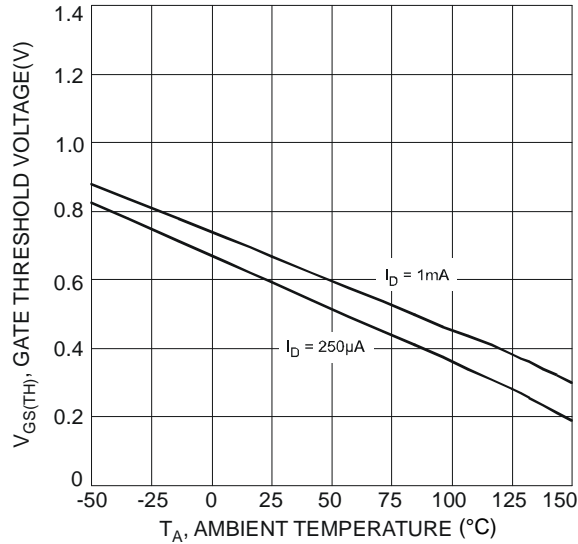


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

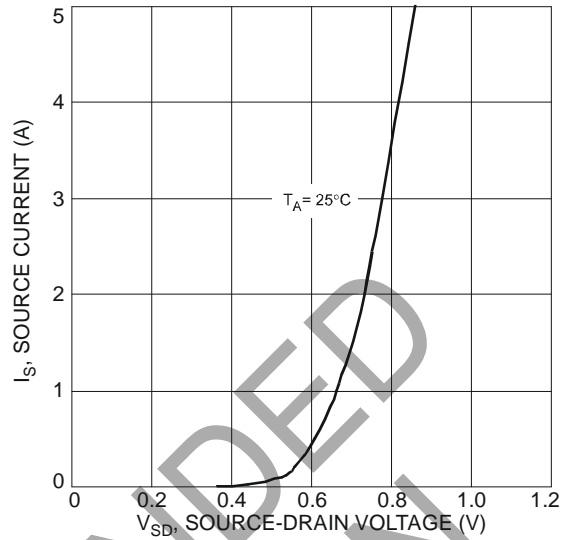


Fig. 8 Diode Forward Voltage vs. Current

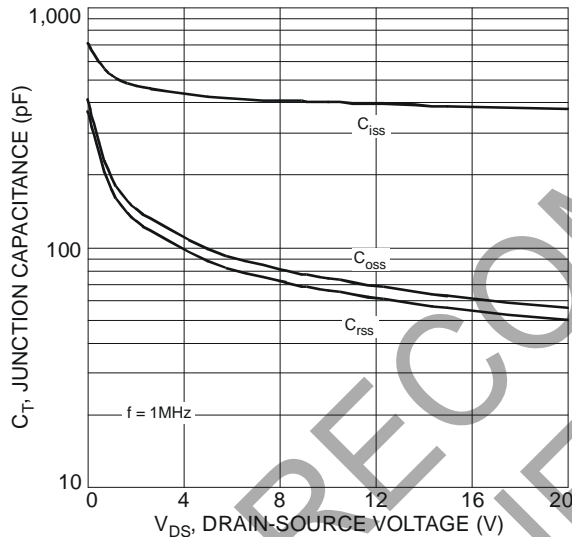


Fig. 9 Typical Junction Capacitance

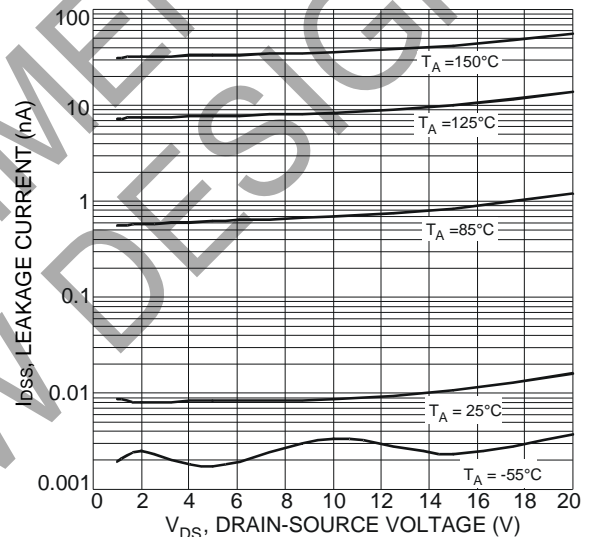


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

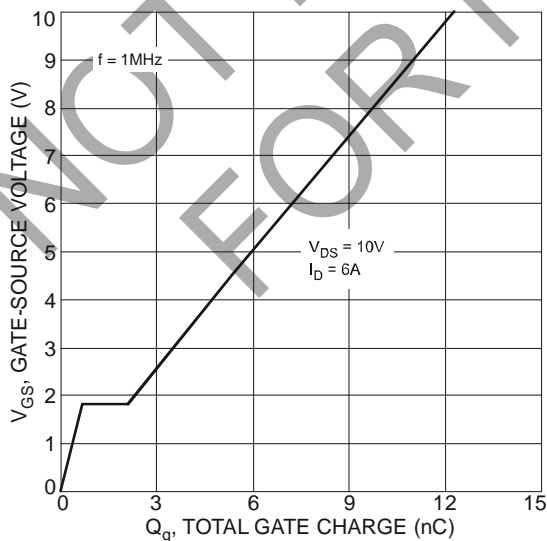


Fig. 11 Gate-Charge Characteristics

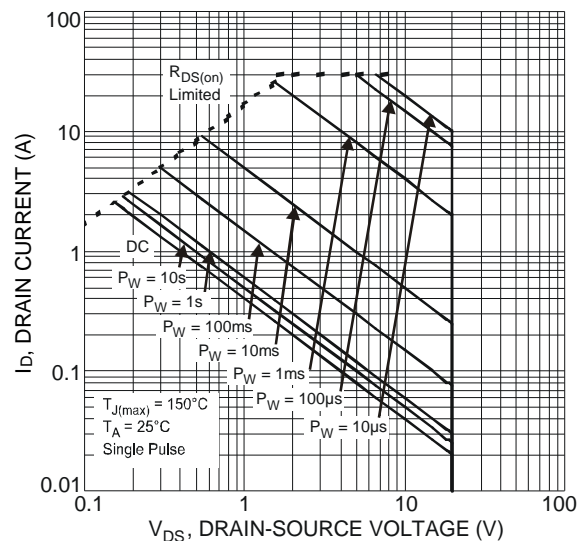
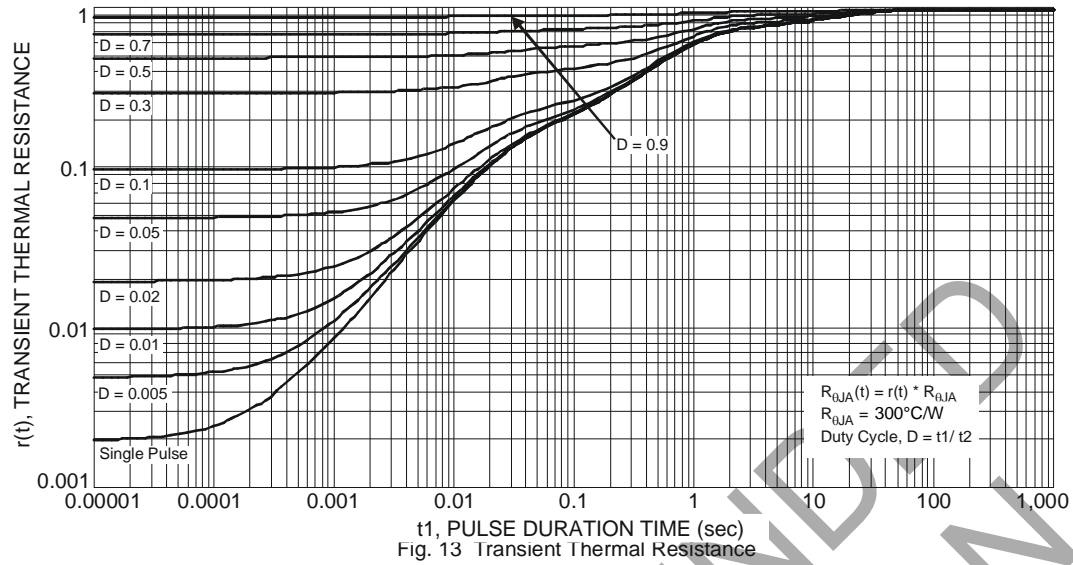


Fig. 12 SOA, Safe Operation Area

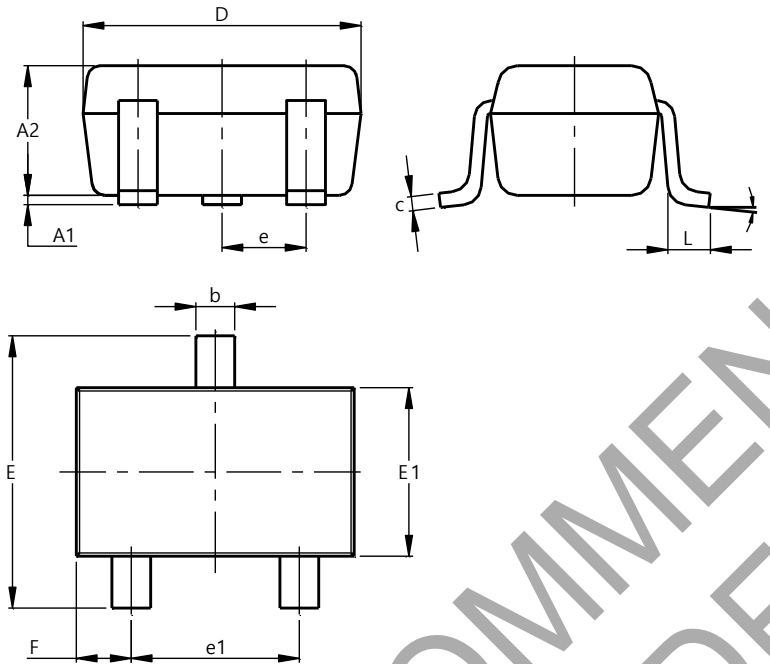


NOT RECOMMENDED
FOR NEW DESIGN

Package Outline Dimensions

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

SOT323

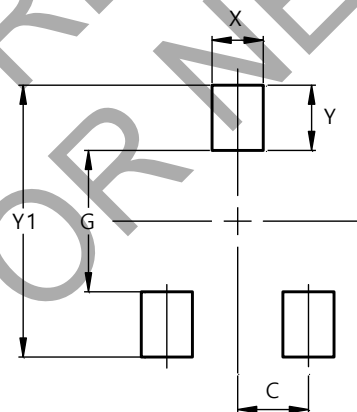


SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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