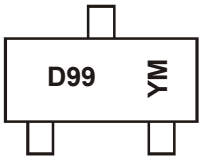
Marking Information



D99= Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: I = 2021)
M = Month (ex: 9 = September)

Date Code Key

Year	2008	……	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	V	……	I	J	K	L	M	N	O	P	R	S

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GSS}	±20	V
Drain Current (Note 5) V_{GS} = -10V	Steady State	T_A = +25°C T_A = +70°C	I_D	-3.8 -2.9	A
Pulsed Drain Current (Note 6)			I_{DM}	-11	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P_D	1.08	W
Thermal Resistance, Junction to Ambient @T_A = +25°C (Note 5)	$R_{\theta JA}$	115	°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}	-30	—	—	V	V_{GS} = 0V, I_D = -250μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-800	nA	V_{DS} = -30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	-1.0	—	-2.1	V	V_{DS} = V_{GS}, I_D = -250μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	—	65	mΩ	V_{GS} = -10V, I_D = -3.8A
				99		V_{GS} = -4.5V, I_D = -3.0A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	3.6	—	S	V_{DS} = -5V, I_D = -2.7A
Diode Forward Voltage (Note 6)	V_{SD}	—	—	-1.26	V	V_{GS} = 0V, I_S = -2.7A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	563	—	pF	V_{DS} = -25V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	48	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	41	—	pF	
Gate Resistance	R_G	—	10.3	—	Ω	V_{GS} = 0V V_{DS} = 0V, f = 1MHz
SWITCHING CHARACTERISTICS (Note 8)						
Total Gate Charge	Q_g	—	5.2	—	nC	V_{DS} = -15V, V_{GS} = -4.5V, I_D = -3.8A
		—	11	—		V_{DS} = -15V, V_{GS} = -10V, I_D = -3.8A
Gate-Source Charge	Q_{gs}	—	1.7	—		
Gate-Drain Charge	Q_{gd}	—	1.9	—		
Turn-On Delay Time	$t_{d(on)}$	—	4.8	—	ns	V_{DS} = -15V, V_{GS} = -10V, I_D = -1A, R_G = 6.0Ω
Rise Time	t_r	—	5.0	—		
Turn-Off Delay Time	$t_{d(off)}$	—	31	—		
Fall Time	t_f	—	15	—		

Notes:
5. Device mounted on FR-4 PCB on 2 oz., 0.5 $in.^2$ copper pads and t ≤5 sec.
6. Pulse width ≤10μS, Duty Cycle ≤1%.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to production testing.

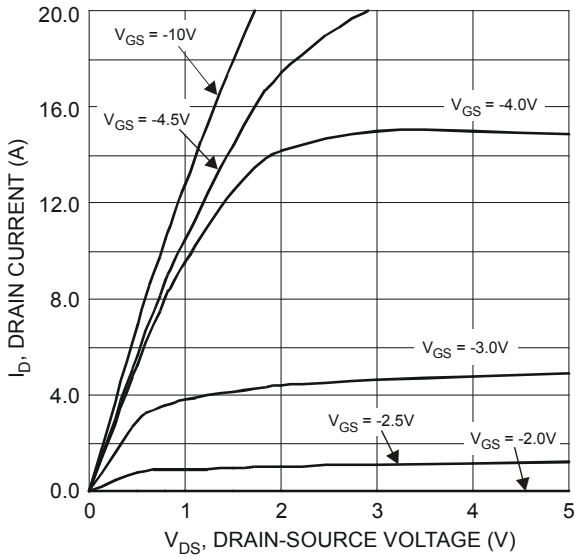


Figure 1 Typical Output Characteristics

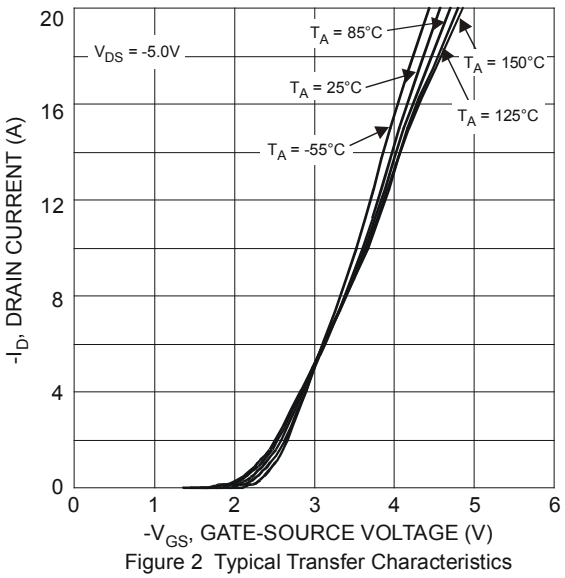


Figure 2 Typical Transfer Characteristics

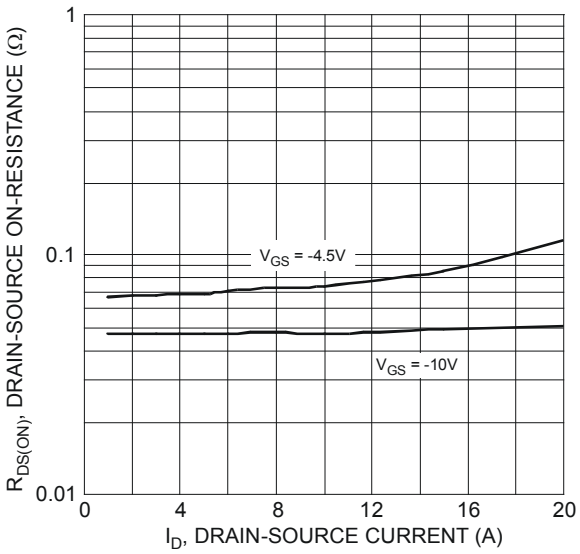


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

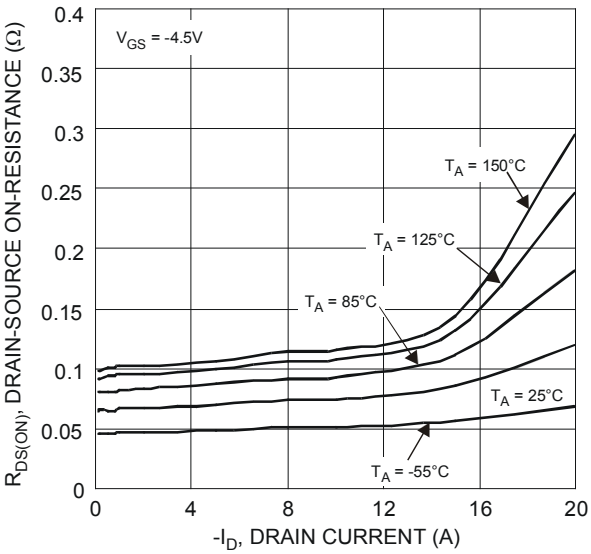


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

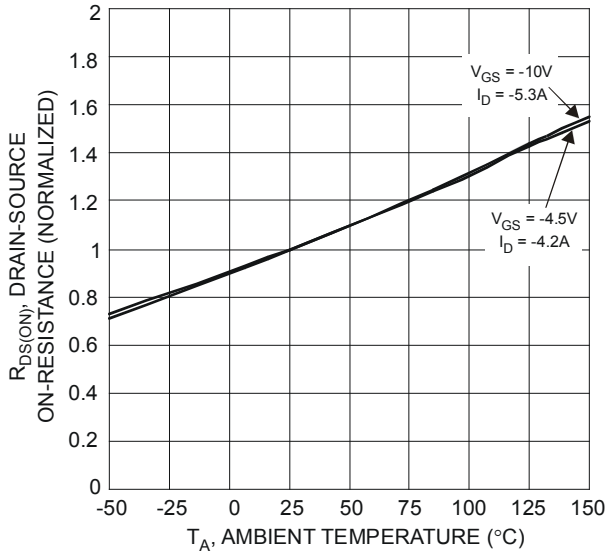


Figure 5 On-Resistance Variation with Temperature

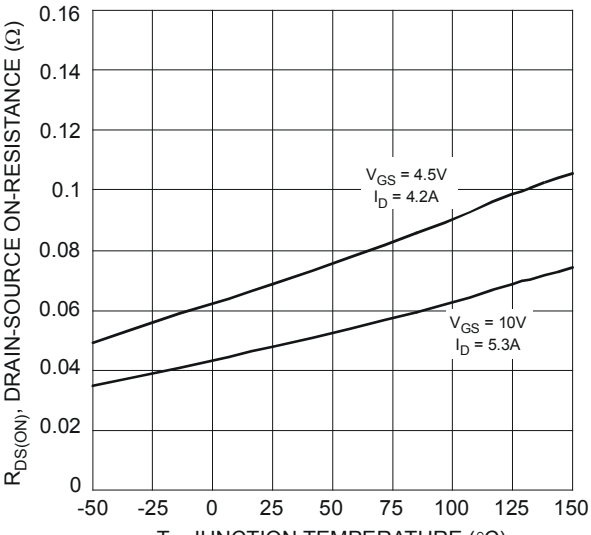


Figure 6 On-Resistance Variation with Temperature

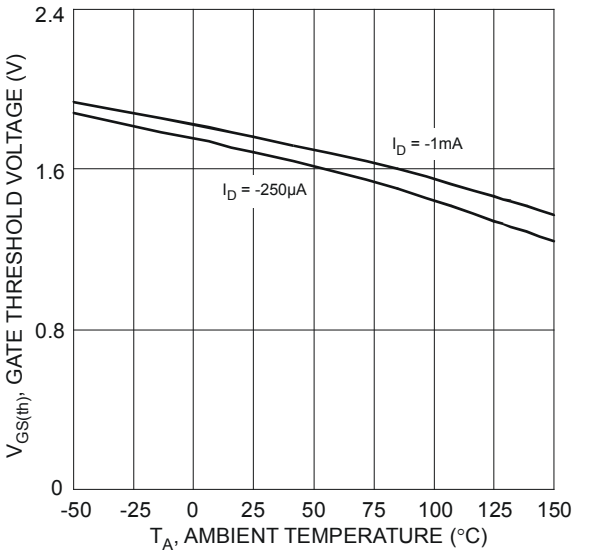


Figure 7 Gate Threshold Variation vs. Ambient Temperature

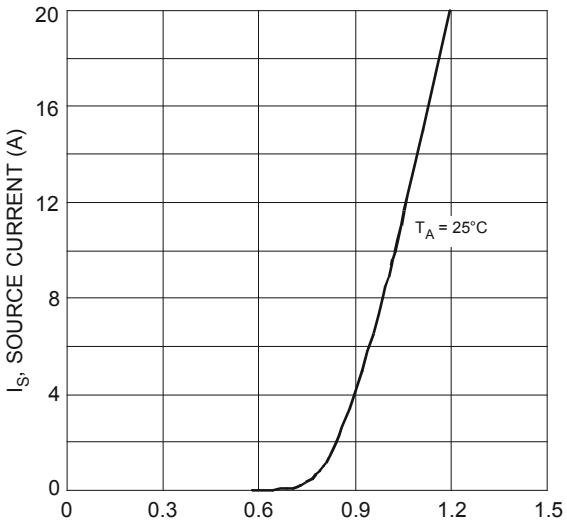


Figure 8 Diode Forward Voltage vs. Current

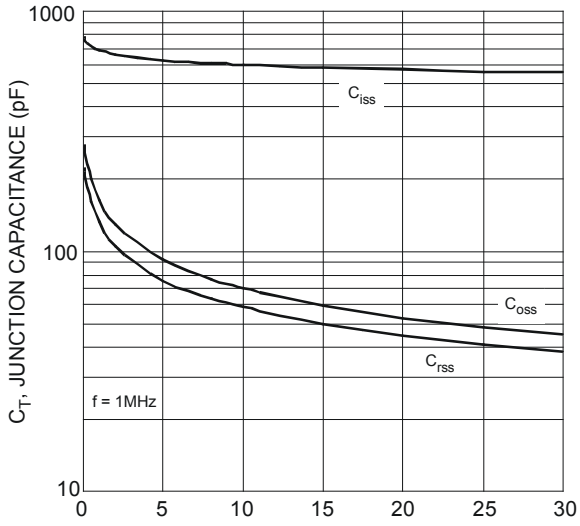


Figure 9 Typical Junction Capacitance

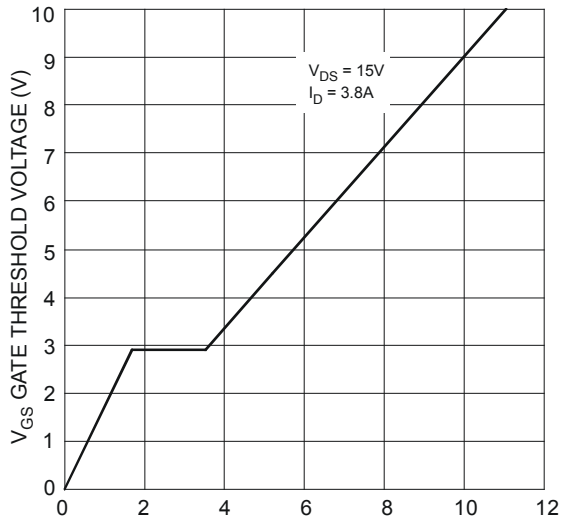
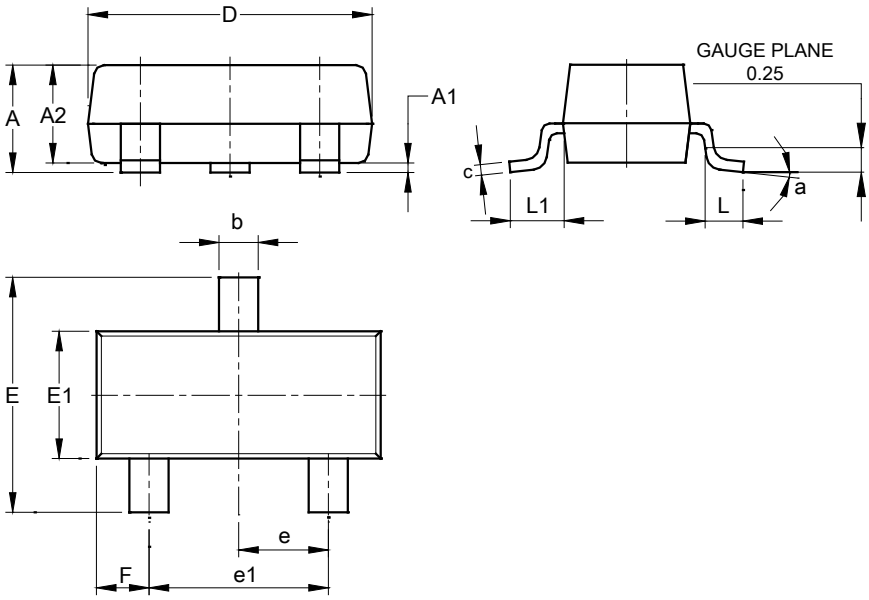


Figure 10 Gate Charge

Package Outline Dimensions

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

SOT23 (Standard)

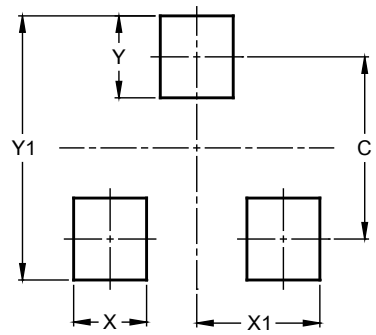


SOT23 (Standard)			
Dim	**Min**	**Max**	**Typ**
A	0.90	1.15	1.025
A1	0.00	0.10	0.05
A2	0.85	1.10	0.975
b	0.30	0.51	0.40
c	0.080	0.202	0.11
D	2.80	3.00	2.90
E	2.25	2.55	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.40	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23 (Standard)



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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