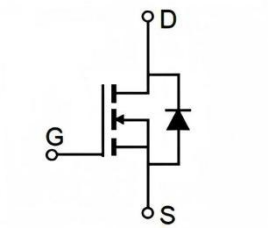
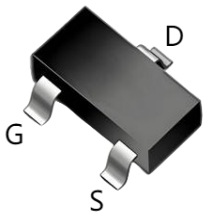
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	20	V
$R_{DS(on)}$	11	mΩ
I_D	8	A





SOT-23-3L

Features

- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Advanced high cell density Trench technology

Applications

- Load Switch
- PWM Application
- Power

Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_C=25℃	I_D	8	A
Continuous Drain Current	T_C=70℃	I_D	5	A
Pulsed Drain Current [2]		I_{DM}	32	A
Total Power Dissipation [3]	T_C=25℃	P_D	2	W
Storage Temperature Range		T_{STG}	-55 to 150	℃
Operating Junction Temperature Range		T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-ambient [1]	$R_{\theta JA}$	--	120	℃/W

Electrical Characteristics(T_J=25℃,unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1.0	μA
Gate to Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}= ±12V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	0.75	1.2	V
Static Drain-Source on-Resistance note[2]	$R_{DS(on)}$	V_{GS}=4.5V, I_D=8A	-	11	15	mΩ
		V_{GS}=2.5V, I_D=5A	-	16	20	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0V f=1.0MHz	-	700	-	pF
Output Capacitance	C_{oss}		-	132	-	pF
Reverse Transfer Capacitance	C_{rss}		-	114	-	pF
Total Gate Charge	Q_g	V_{DS}=10V, I_D=4A V_{GS}=4.5V	-	15	-	nC
Gate-Source Charge	Q_{gs}		-	2	-	nC
Gate-Drain(“Miller”) Charge	Q_{gd}		-	5.2	-	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=10V I_D=4A, R_{GEN}=3Ω V_{GS}=4.5V	-	9	-	ns
Turn-on Rise Time	t_r		-	25	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	37	-	ns
Turn-off Fall Time	t_f		-	14	-	ns
Drain.Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S		-	-	8	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}		-	-	32	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=8A	-	-	1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics

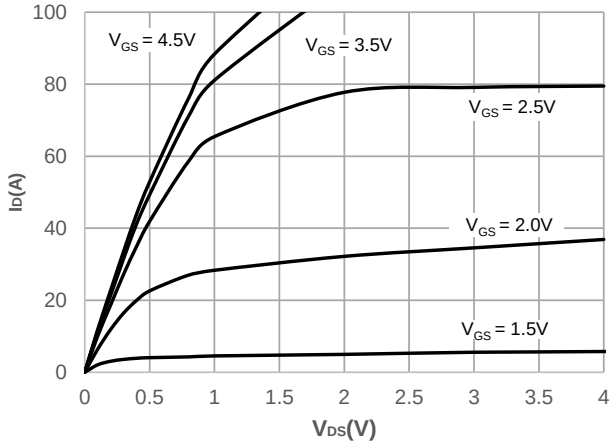


Figure 1: Output Characteristics

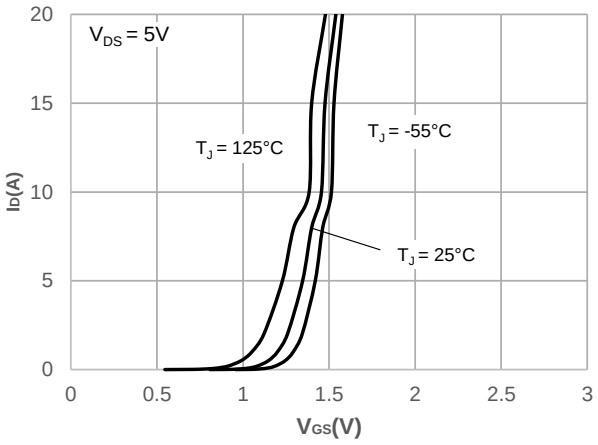


Figure 2: Typical Transfer Characteristics

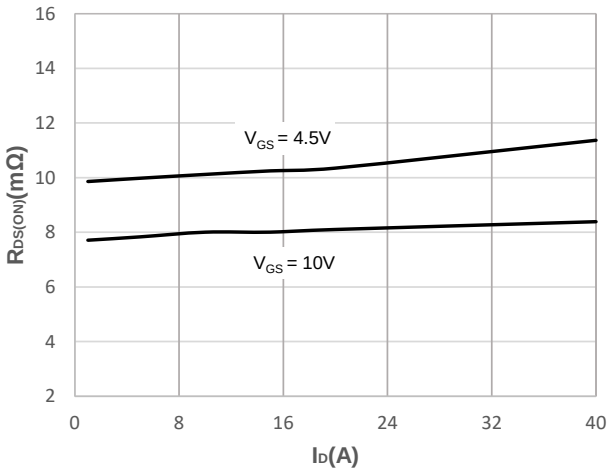


Figure 3: On-resistance vs. Drain Current

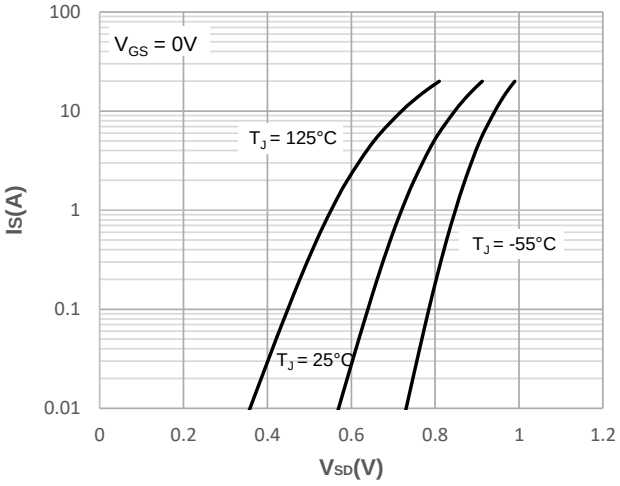


Figure 4: Body Diode Characteristics

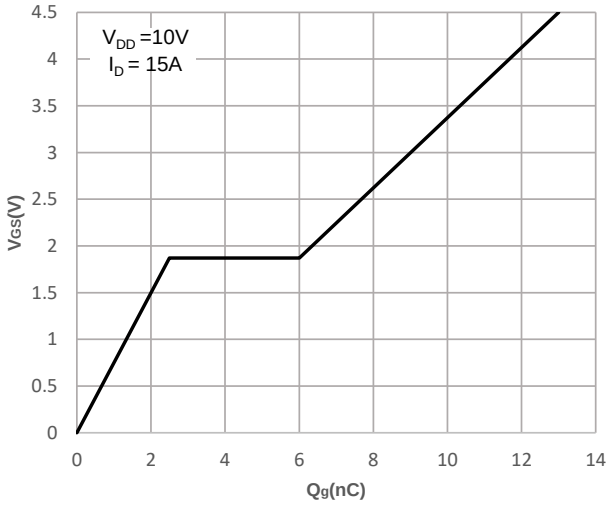


Figure 5: Gate Charge Characteristics

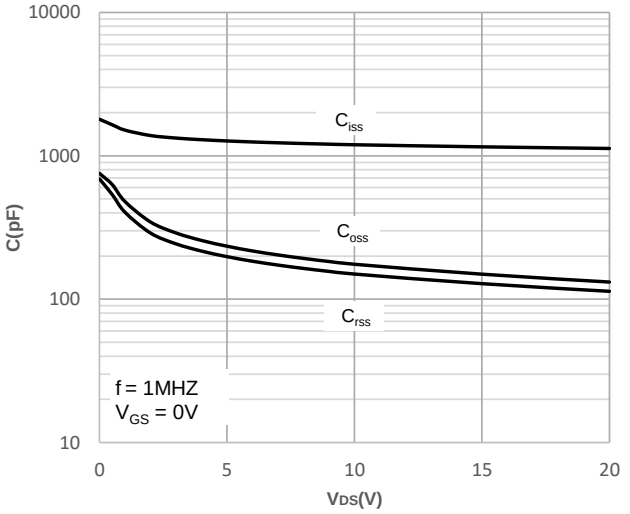


Figure 6: Capacitance Characteristics

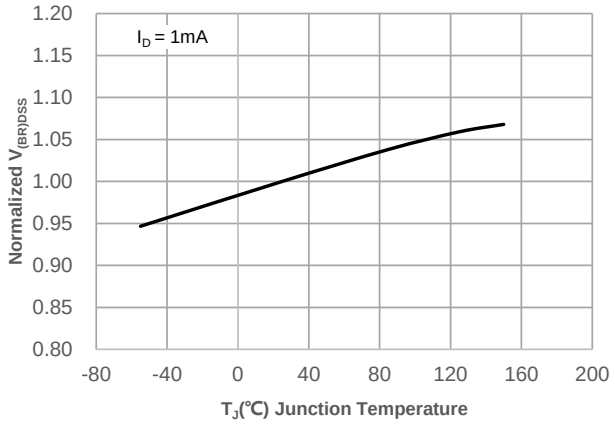


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

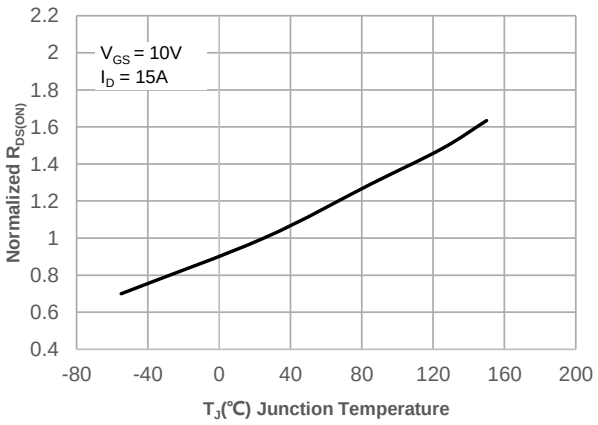


Figure 8: Normalized on Resistance vs. Junction Temperature

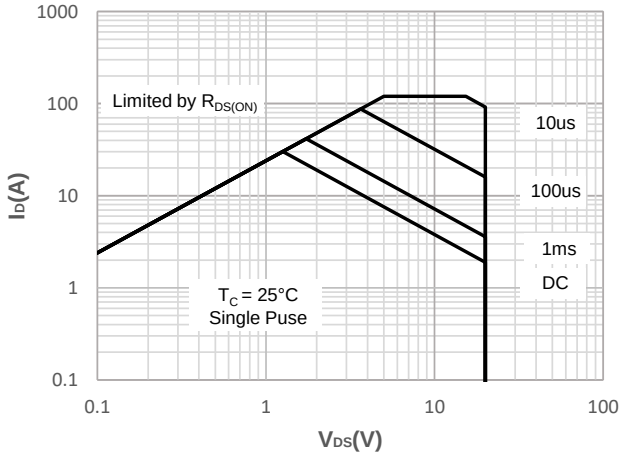


Figure 9: Maximum Safe Operating Area

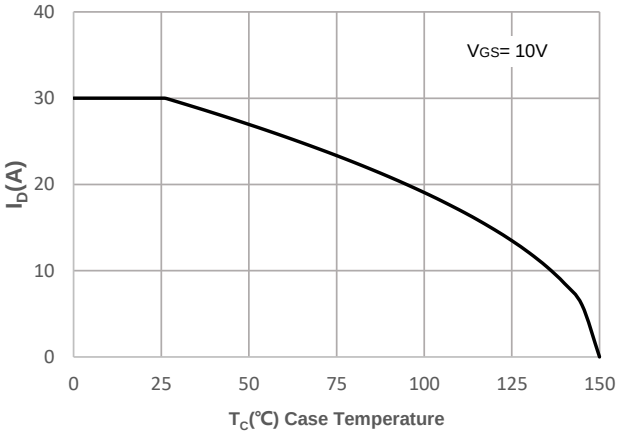


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

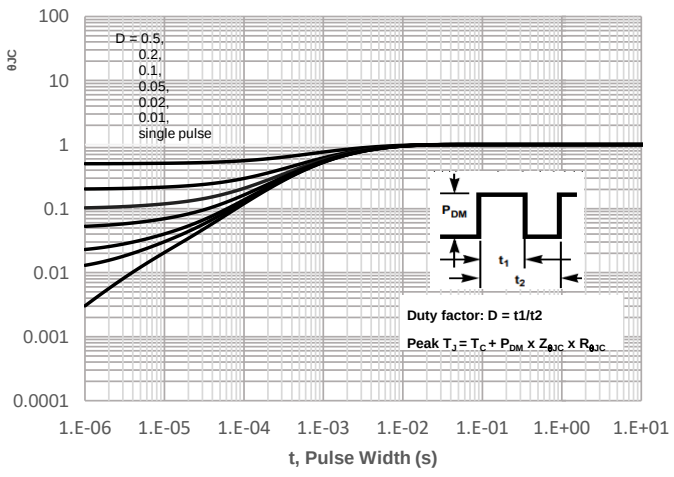


Figure 11: Normalized Maximum Transient Thermal Impedance

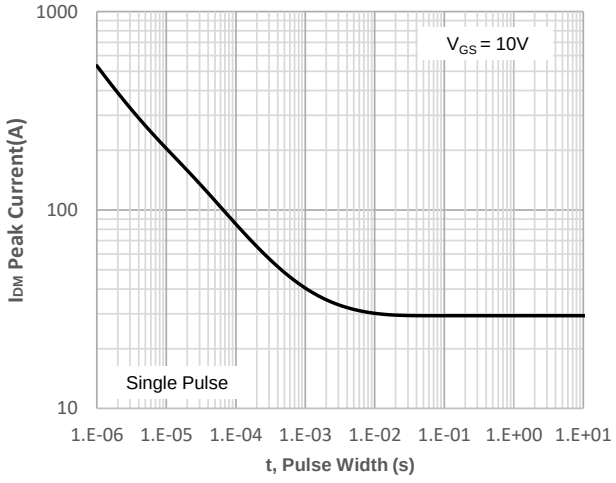
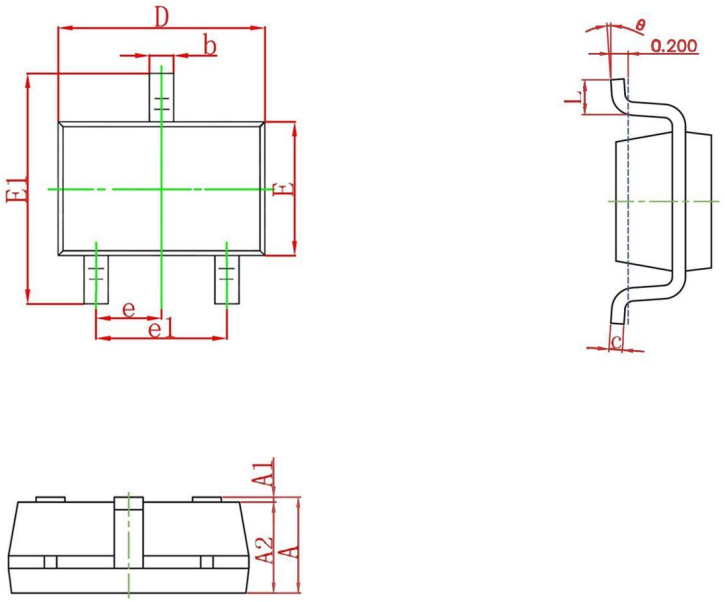


Figure 12: Peak Current Capacity

Package Outline Dimensions (Units: mm)

SOT-23-3L



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.042	0.050
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.042	0.046
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.112	0.120
E	1.500	1.700	0.060	0.068
E1	2.650	2.950	0.106	0.118
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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