

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	320mΩ@10V	4A
	380mΩ@4.5V	

Feature

- Advanced trench technology
- Excellent $R_{DS(on)}$
- Low gate charge

Application

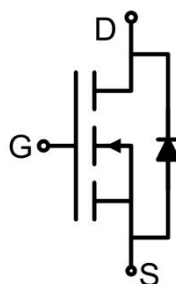
- Automotive lighting
- Load switch
- Uninterruptible power supply

Package

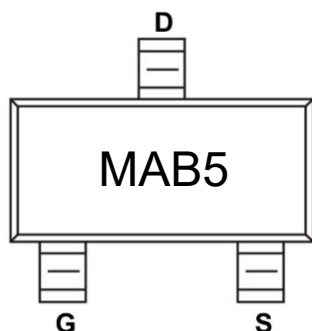


SOT-23-3L

Circuit diagram



Marking



Absolute maximum ratings ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($V_{GS}=10\text{V}$)	I_D	4	A
Continuous Drain Current ($V_{GS}=10\text{V}$, $T_c=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	1.5	A
Pulsed Drain Current ¹⁾	I_{DM}	9	A
Power Dissipation ²⁾ ($T_A=25^{\circ}\text{C}$)	P_D	1.1	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	113.6	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	150			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =150V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.9	3	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =7A		280	320	mΩ
		V _{GS} =4.5V, I _D =6A		300	380	
Dynamic characteristics ³⁾						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz		538		pF
Output Capacitance	C _{oss}			55		
Reverse Transfer Capacitance	C _{rss}			21		
Total Gate Charge	Q _g	V _{DS} =75V, V _{GS} =10V,I _D =10A		17.5		nC
Gate-Source Charge	Q _{gs}			4.5		
Gate-Drain Charge	Q _{gd}			4.7		
Turn-on delay time	t _{d(on)}	V _{DS} =75V, V _{GS} =10V R _L =10.68Ω , R _G =6Ω		11.6		nS
Turn-on rise time	t _r			9.3		
Turn-off delay time	t _{d(off)}			29.3		
Turn-off fall time	t _f			3.7		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				4	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =1.8A			1.2	V

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The power dissipation is limited by 150 $^{\circ}\text{C}$ junction temperature.
- 3) Guaranteed by design, not subject to production.

Typical Characteristics

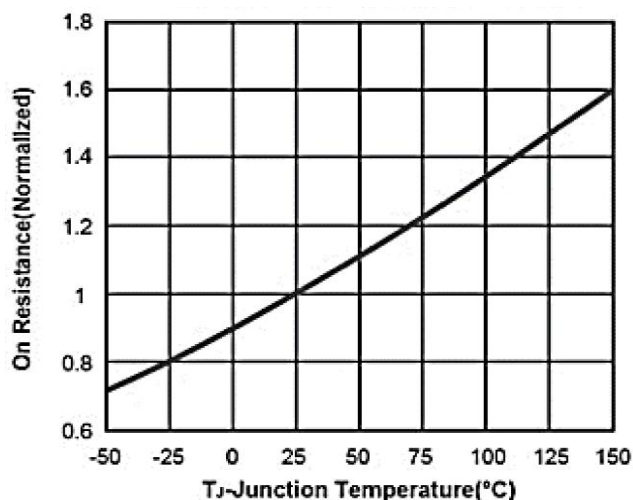


Fig.1 On Resistance Vs Junction Temperature

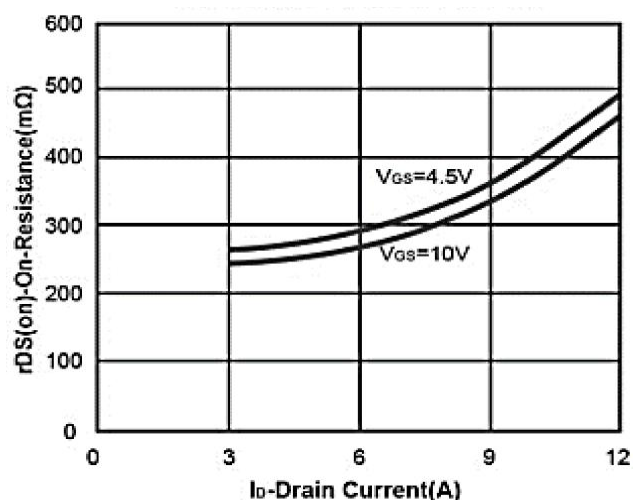


Fig.2 On-Resistance Vs. Drain Current

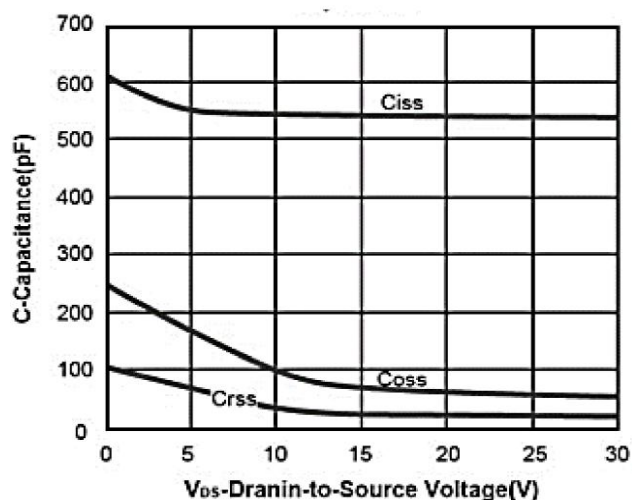


Fig.3 Capacitance

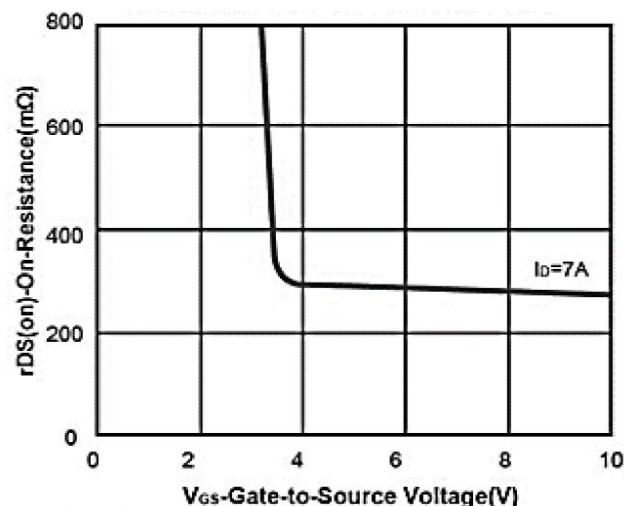


Fig.4 On-Resistance Vs. Gate-to-Source Voltage

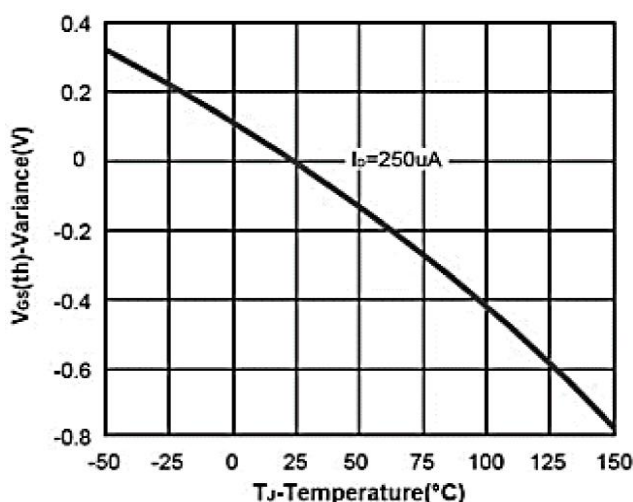


Fig.5 Threshold Voltage

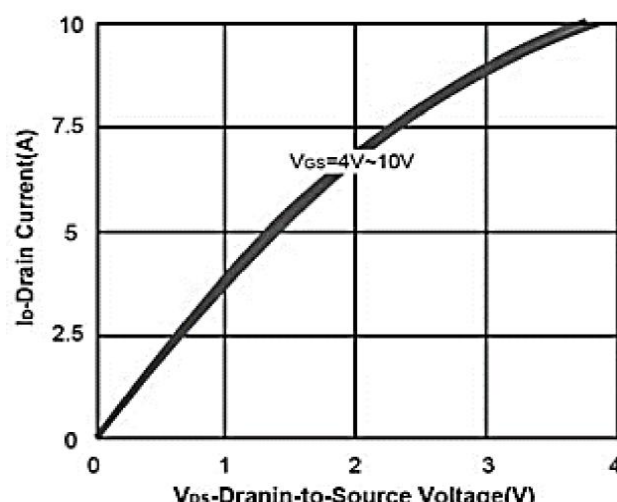


Fig.6 On-Region Characteristics

Typical Characteristics

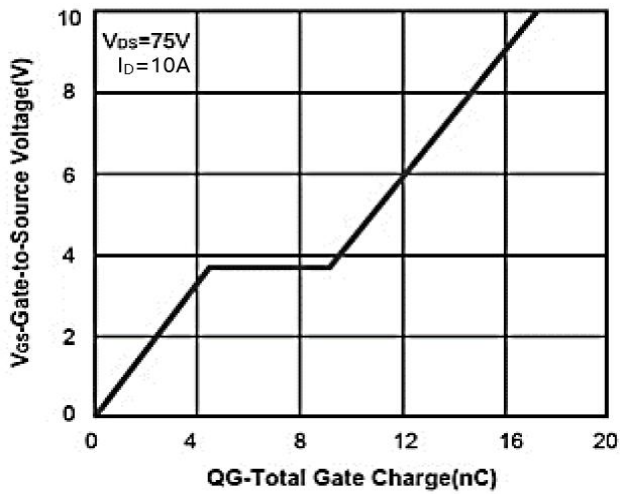


Fig.7 Gate Charge

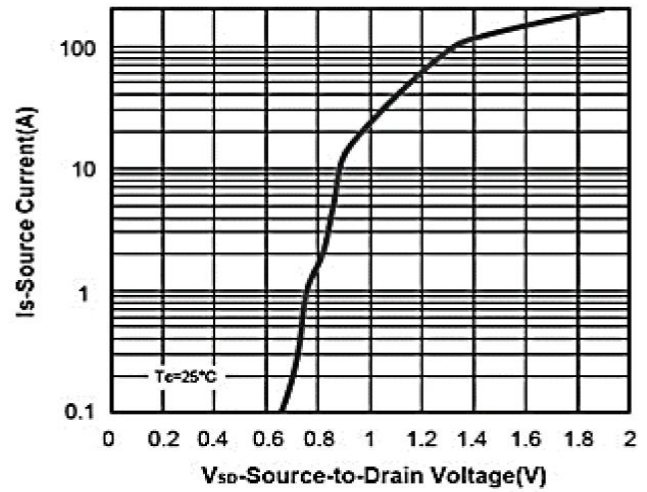


Fig.8 Body-diode Characteristic

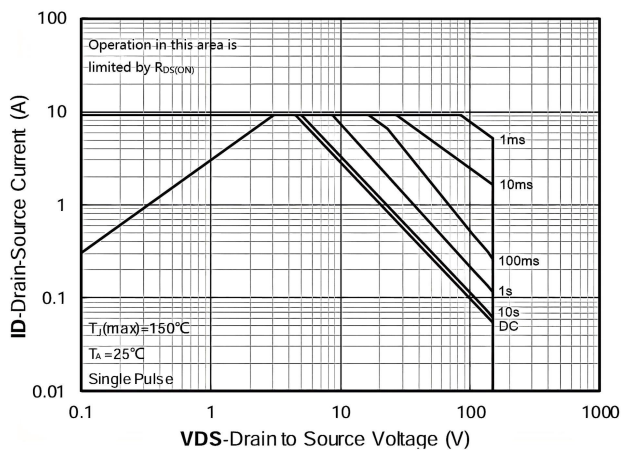


Figure 9. Safe Operation Area

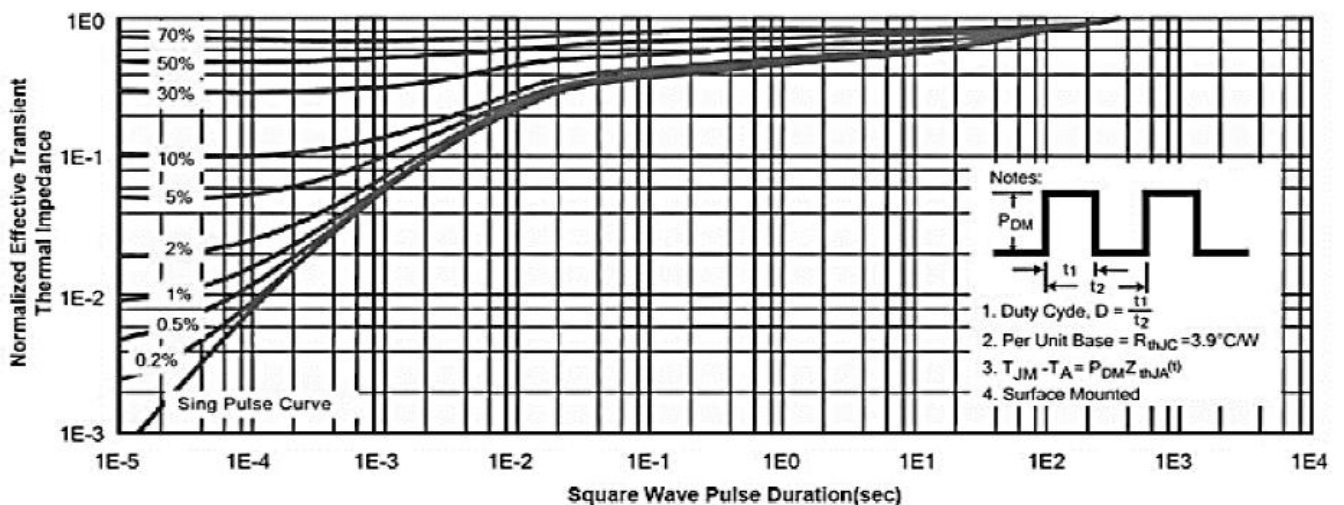
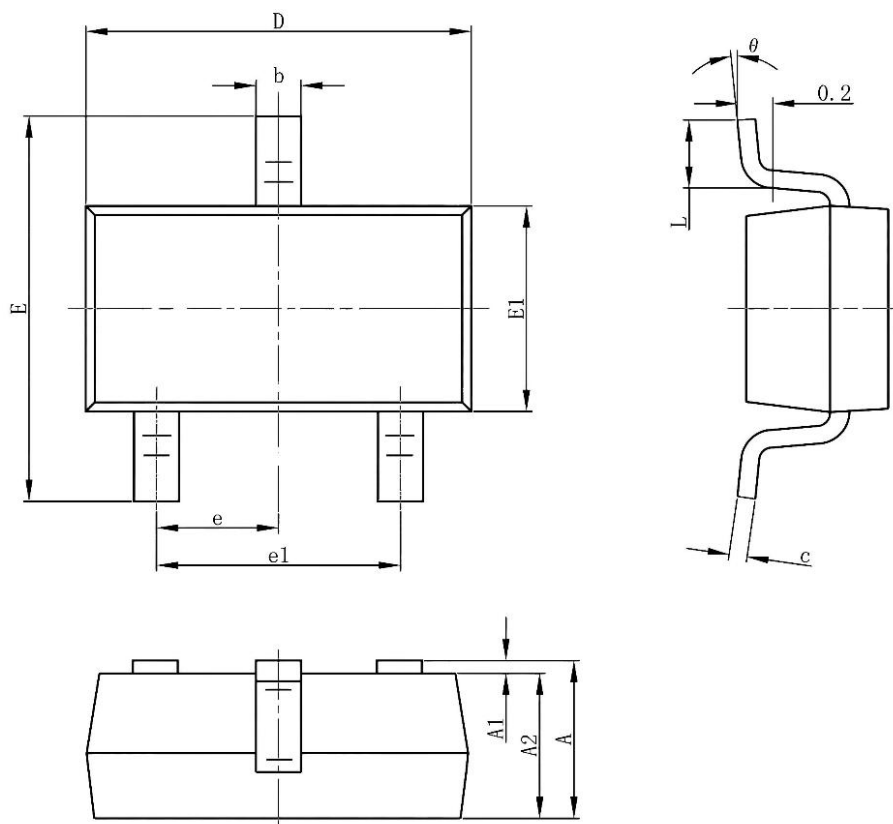


Fig.10 Normalized Maximum Transient Thermal Impedance

SOT-23-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.250	0.450	0.010	0.018
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950 BSC.		0.037 BSC.	
e1	1.800	2.000	0.071	0.079
L	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°