

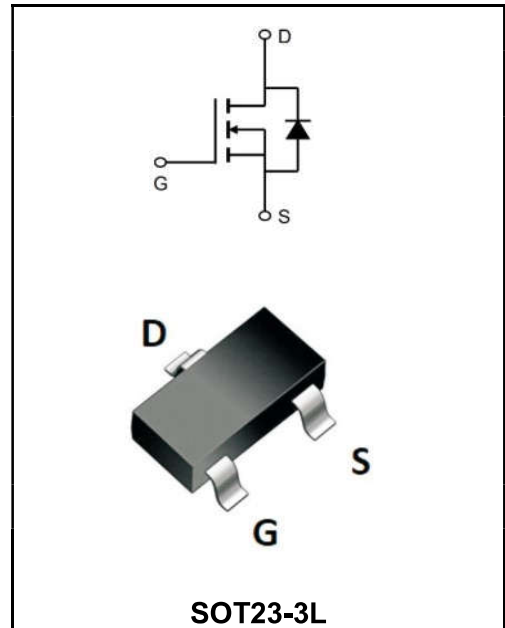
150V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	4A
V_{DSS}	150V
R_{DS(on)-typ(@V_{GS}=10V)}	< 300mΩ(Type:230 mΩ)

Application

- ◆Battery protection
- ◆Load switch
- ◆Uninterruptible power supply



SOT23-3L

Marking Code

YFW4N15MI	MAB5
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Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	150	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, V _{GS} @ 10V ¹ @T _A =25°C	I_D	4	A
Continuous Drain Current, V _{GS} @ 10V ¹ @T _A =100°C	I_D	1.5	A
Pulsed Drain Current ²	I_{DM}	9	A
Total Power Dissipation ³ @T _A =25°C	P_D	2	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Temperature Range	T_J	-55 to +150	°C
Thermal Resistance, Junction ambient ¹	R_{θJA}	125	°C/W
Thermal Resistance, Junction-case ¹	R_{θJC}	80	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	150	165	-	V
Zero Gate Voltage Drain Current	$V_{DS}=150V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Gate to Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.8	3.0	V
Drain-Source On-State Resistance	$V_{GS}=10V, I_D=1.5A$	$R_{DS(ON)}$	-	220	280	m Ω
	$V_{GS}=4.5V, I_D=1.5A$		-	230	300	
Forward Transconductance	$V_{DS}=15V, I_D=1.5A$	g_{fs}	-	3	-	S
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	235	-	pF
Output Capacitance		C_{oss}	-	36	-	
Reverse Transfer Capacitance		C_{rss}	-	20	-	
Turn-on delay time	$V_{DD}=75V$ $I_D=1A$ $R_L=75\Omega$ $V_{GS}=10V$ $R_G=6\Omega$	$t_{d(on)}$	-	8	-	nS
Turn-on Rise Time		T_r	-	10	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	20	-	
Turn-Off Fall Time		t_f	-	15	-	
Total Gate Charge	$V_{DS}=75V$ $I_D=1.5A$ $V_{GS}=10V$	Q_g	-	8	-	nC
Gate-Source Charge		Q_{gs}	-	1.4	-	
Gate-Drain Charge		Q_{gd}	-	2.1	-	
Diode Forward Voltage ^(Note 3)	$V_{GS}=0V, I_S=2A$	V_{SD}	-	-	1.2	V
Diode Forward Current ^(Note 2)		I_S	-	-	2	A

Note :

1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width $\cong 300\mu s$, duty cycle $\cong 2\%$

3.The power dissipation is limited by 150°C junction temperature

4 .The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

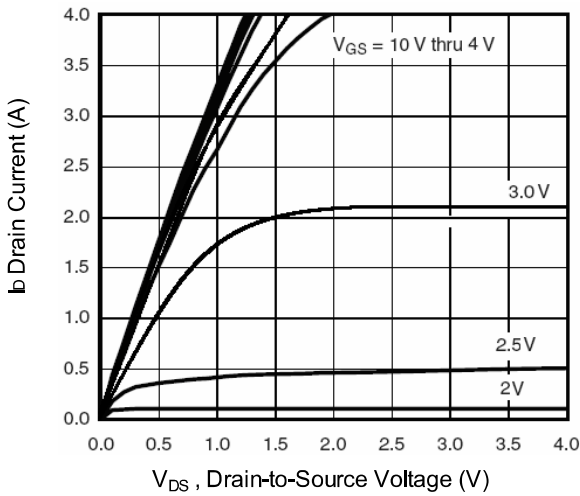


Fig.1 Typical Output Characteristics

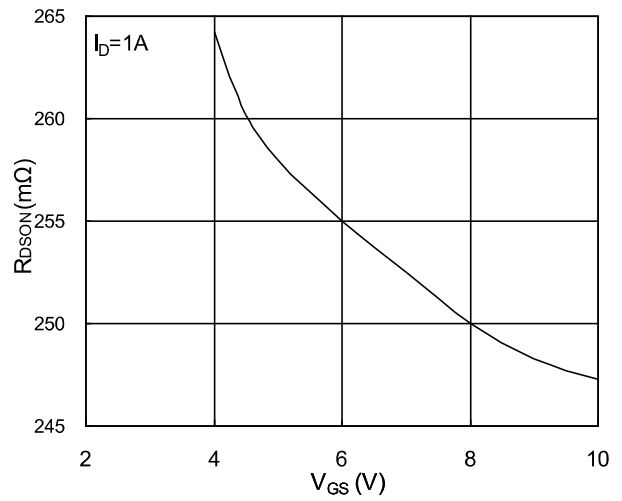


Fig.2 On-Resistance vs. Gate-Source

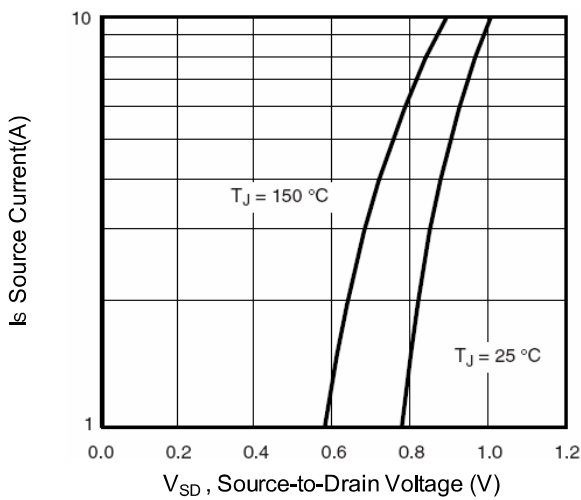


Fig.3 Forward Characteristics of Reverse

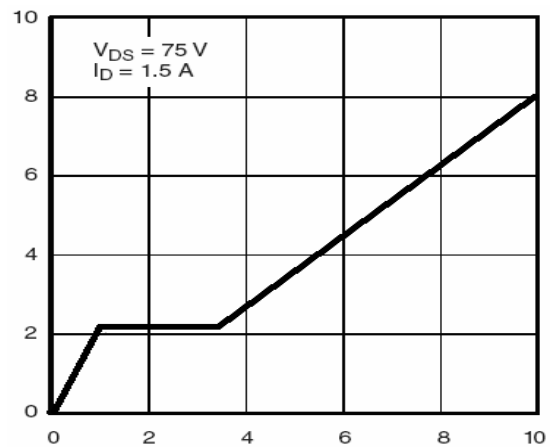


Fig.4 Gate-Charge Characteristics

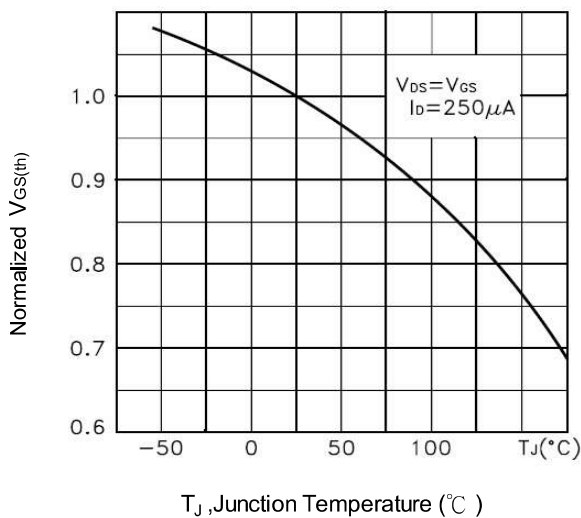


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

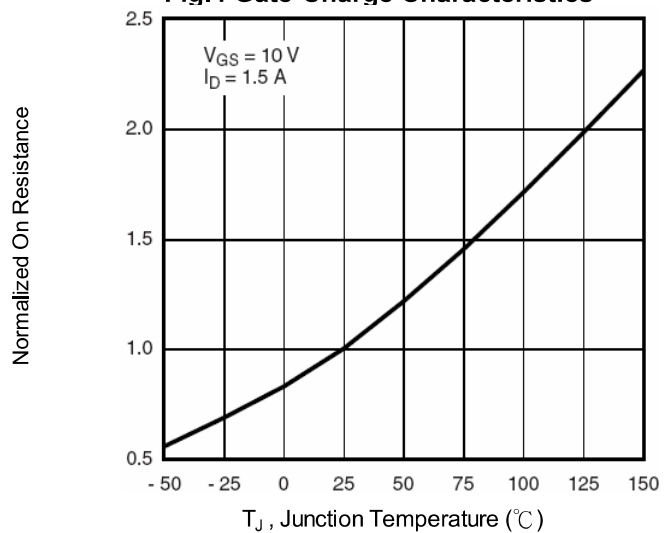


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

Ratings and Characteristic Curves

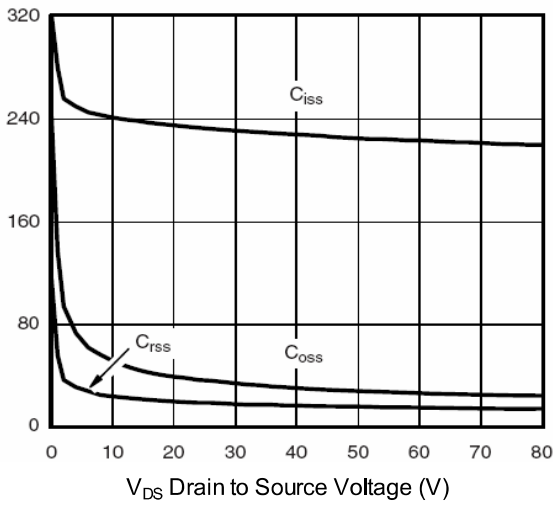


Fig.7 Capacitance

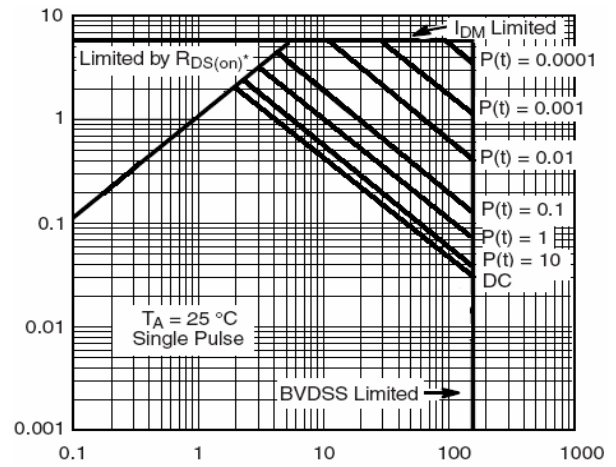


Fig.8 Safe Operating Area

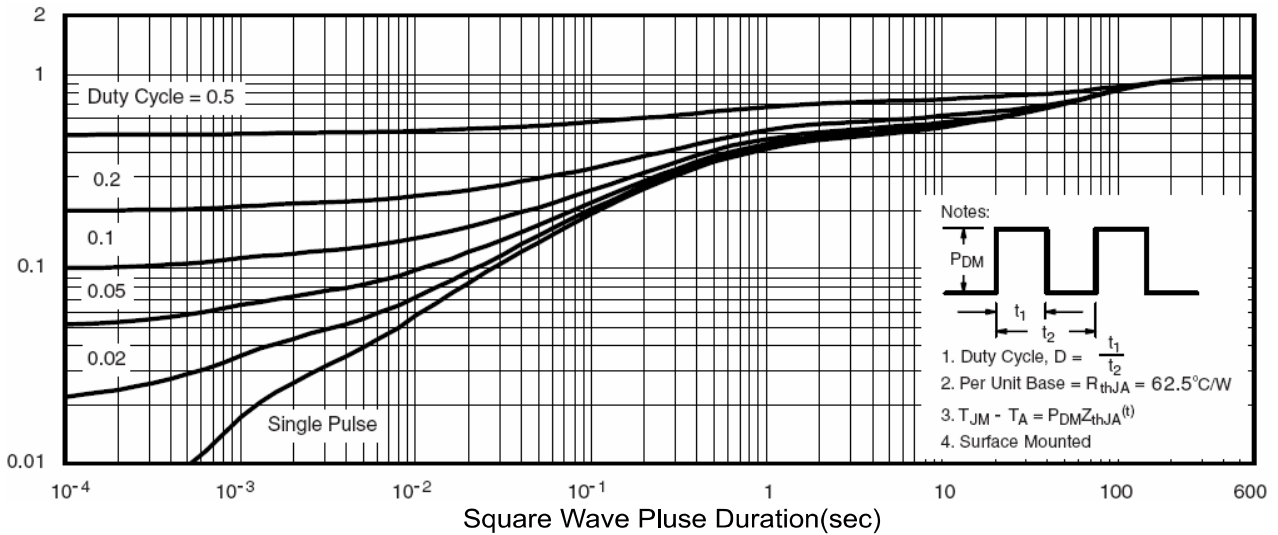


Fig.9 Normalized Maximum Transient Thermal Impedance

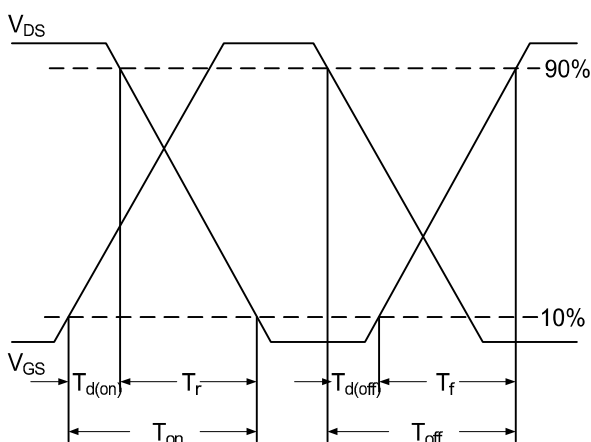


Fig.10 Switching Time Waveform

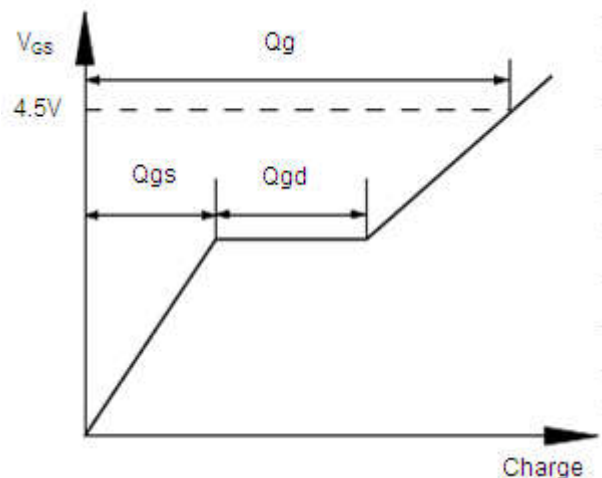


Fig.11 Gate Charge Waveform

Ordering information

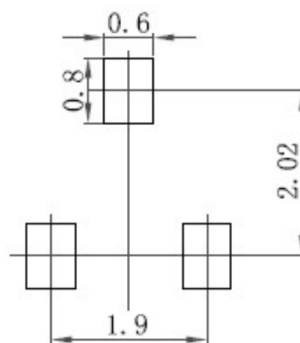
Package	Packing Description	Base Quantity	Packing Quantity
SOT23-3L	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT23-3L

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	1.05	1.25	41	49.2
A1	0.10		3.93	
A2	1.05	1.15	41	45
b	0.30	0.50	12	20
c	0.10	0.20	3.93	7.9
D	2.82	3.02	111	119
E	1.50	1.70	59	67
E1	2.65	2.95	104	116
e	0.95		37.4	
e1	1.80	2.00	71	78
L	0.30	0.066	12	26
Θ	8°			

The recommended mounting pad size



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