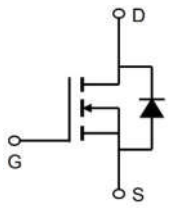
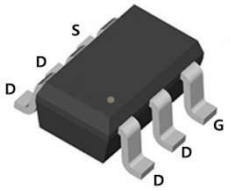
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	8A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 100mΩ(Type:80 mΩ)





SOT23-6L

Application

- Automative lighting
- Load switch
- Uninterruptible power supply

Marking Code	
YFW8N10MI	8N10

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=25℃	I_D	8	A
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=100℃	I_D	6.5	A
Pulsed Drain Current[1]	I_{DM}	24	A
Total Power Dissipation @T_C=25℃	P_D	30	W
Total Power Dissipation[3] @T_A=25℃	P_D	2.7	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Maximum Thermal Resistance, Junction ambient	$R_{\theta JA}$	120	°C/W
Maximum Thermal Resistance, Junction-case	$R_{\theta JC}$	3.1	°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=250uA	V(BR)DSS	100	107	-	V
Zero Gate Voltage Drain Current	V_{DS}=100V , V_{GS}=0V	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	$V_{GS(th)}$	1.2	2.0	2.5	V
Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=5A	$R_{DS(ON)}$	-	80	100	mΩ
	V_{GS}=4.5V, I_D=3A		-	95	125	
Forward Transconductance	V_{DS}=5V, I_D=5A	g_{FS}	-	14	-	S
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g	-	3	-	Ω
Input Capacitance	V_{DS}=15V V_{GS}=0V f=1.0MHz	C_{iss}	-	1100	-	pF
Output Capacitance		C_{oss}	-	55	-	
Reverse Transfer Capacitance		C_{rss}	-	40	-	
Total Gate Charge	V_{DS}=50V V_{GS}=10V I_D=5A	Q_g	-	11.9	-	nC
Gate-Source Charge		Q_{gs}	-	2.8	-	
Gate-Drain(“Miller”) Charge		Q_{gd}	-	1.7	-	
Turn-on delay time	V_{DS}=30V I_D=5A R_G=1.8Ω V_{GS}=10V	$t_{d(on)}$	-	3.8	-	ns
Turn-on Rise Time		T_r	-	25.8	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	16	-	
Turn-Off Fall Time		t_f	-	8.8	-	
Continuous Source Current1,5	V_G=V_D=0V , Force Current	I_S	-	-	14.6	A
Pulsed Source Current2,5		I_{SM}	-	-	25	A
Diode Forward Voltage 2	V_{GS}=0V , I_S=10A	V_{SD}	-	-	1.2	V

Note :

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

2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3、The power dissipation is limited by 150℃ junction temperature

4、The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

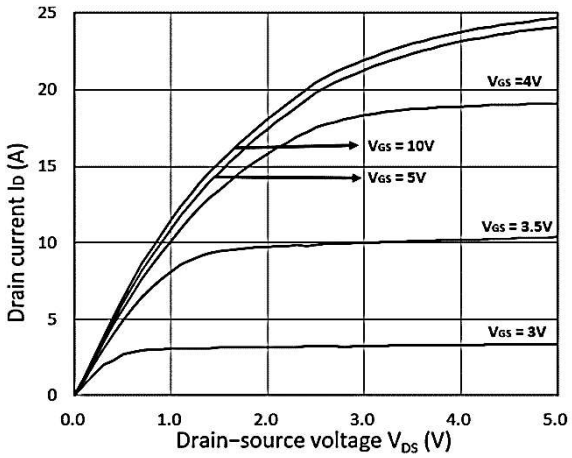


Figure 1. Output Characteristics

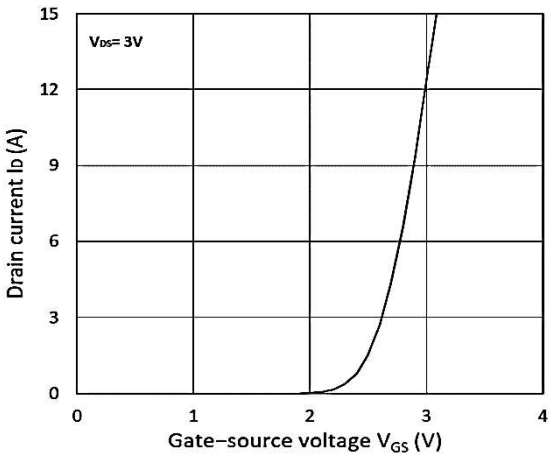


Figure 2. Transfer Characteristics

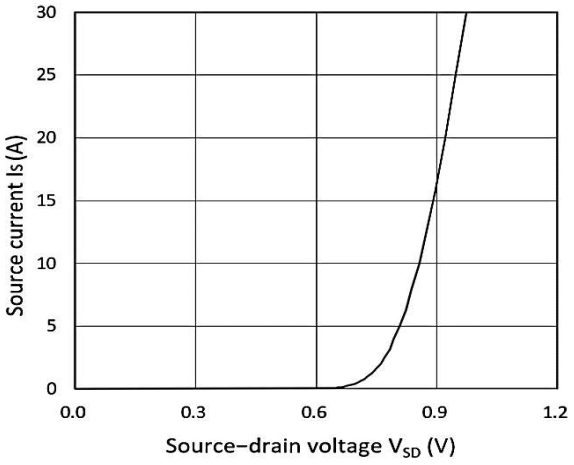


Figure 3. Forward Characteristics of Reverse

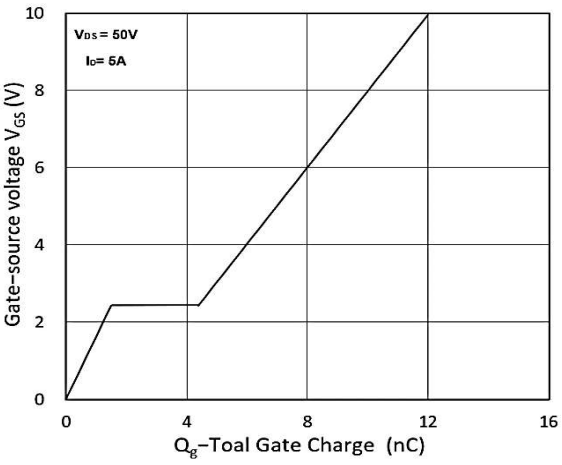


Figure 4. Gate Charge Characteristics

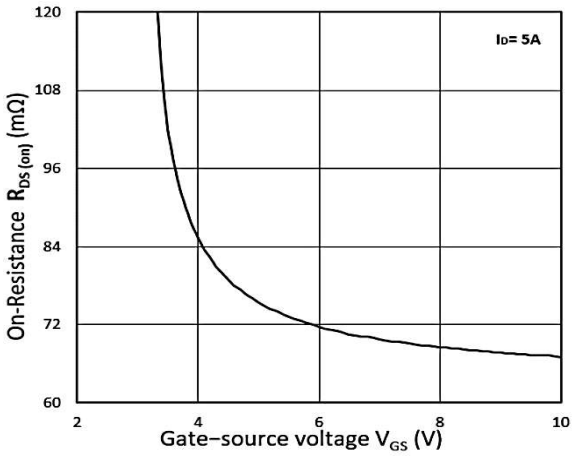


Figure 5. R DS(on) vs. V GS

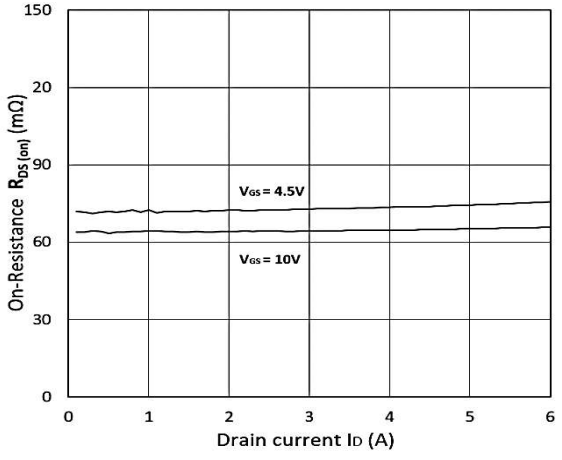


Figure 6. R DS(on) vs. ID

Ratings and Characteristic Curves

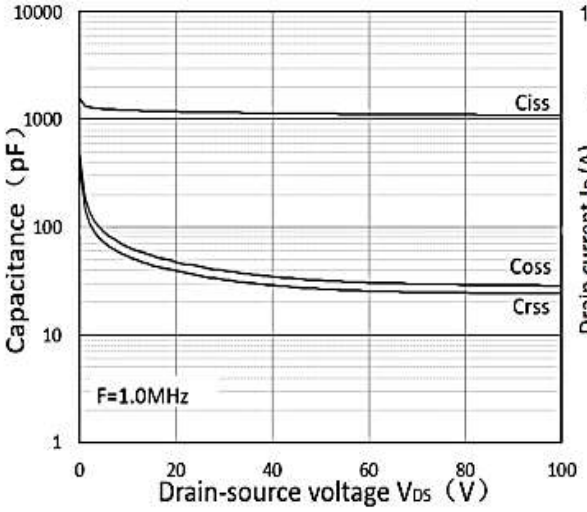


Figure 7. Capacitance Characteristics

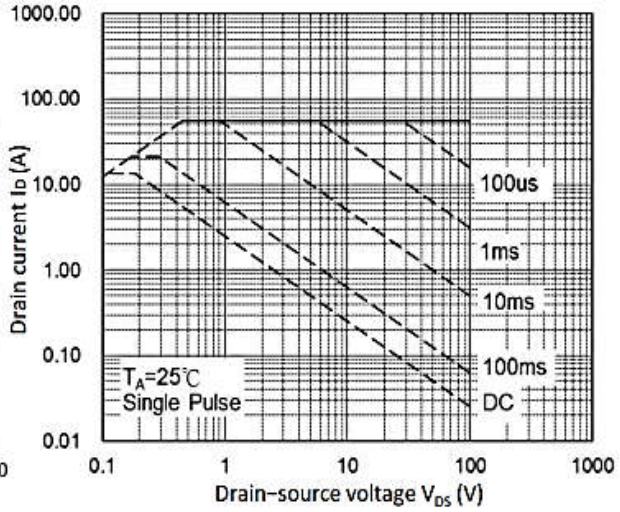


Figure 8. Safe Operating Area

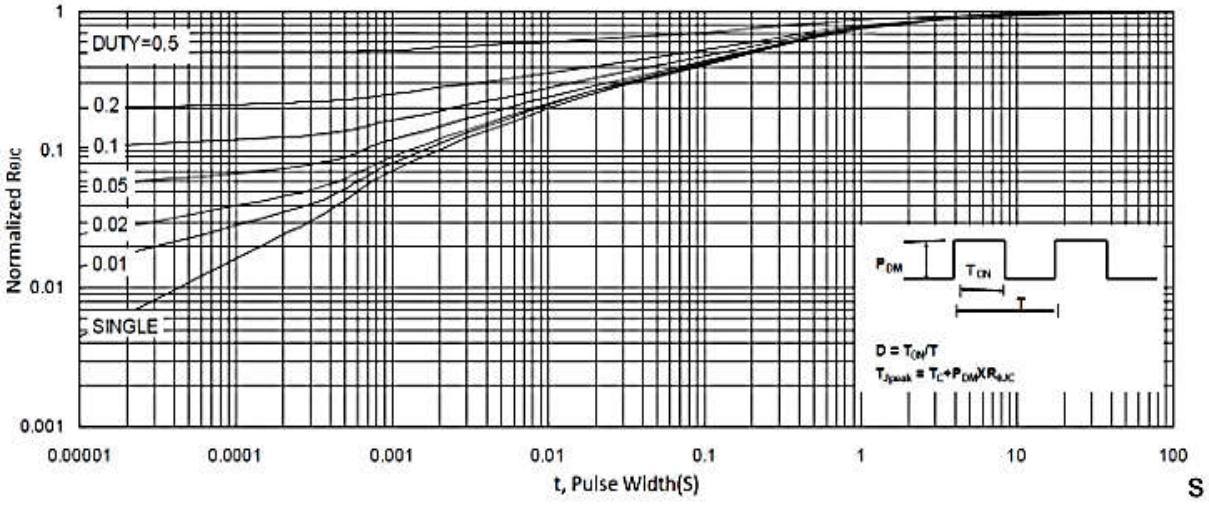


Figure 9. Normalized Maximum Transient Thermal Impedance

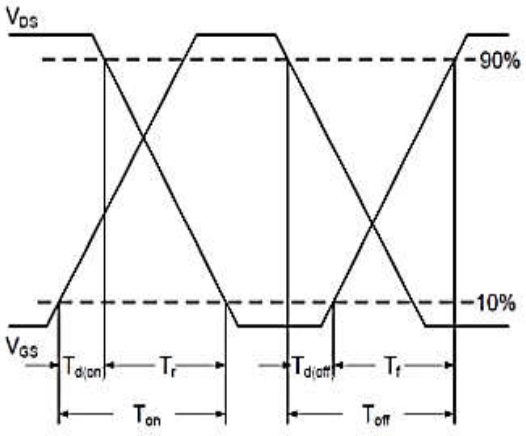


Figure 10. Switching Time Waveform

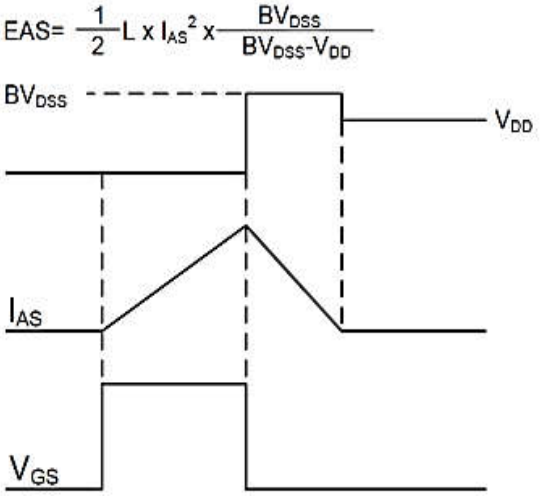


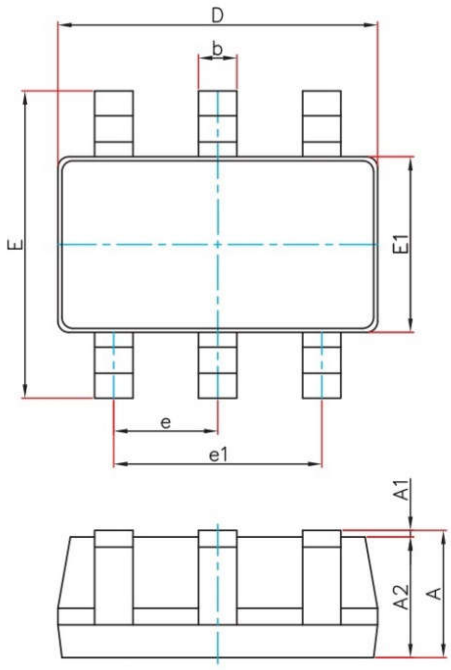
Figure 11. Unclamped Inductive Switching Waveform

Ordering information

Package	Packing Description	Packing Quantity
SOT23-6L	Tape/Reel,7”reel	3000PCS/Reel 120000PCS/Carton

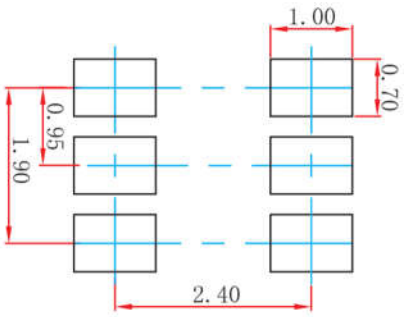
Package Dimensions

SOT23-6L



Dim.	Millimeter(mm)		mil	
	Min.	Max.	Min.	Max.
A	1.05	1.25	41	49
A1	0	0.10	0	3.9
A2	1.05	1.15	41	45
b	0.30	0.50	11.8	19.7
c	0.10	0.20	3.9	7.9
D	2.82	3.02	111	119
E1	1.50	1.70	45	67
E	2.65	2.95	104	116
e	0.950(BSC)		37(BSC)	
e1	1.80	2.00	71	79
L	0.30	0.60	11.8	23.6
θ	0°	8°	0°	8°

The recommended mounting pad size



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