

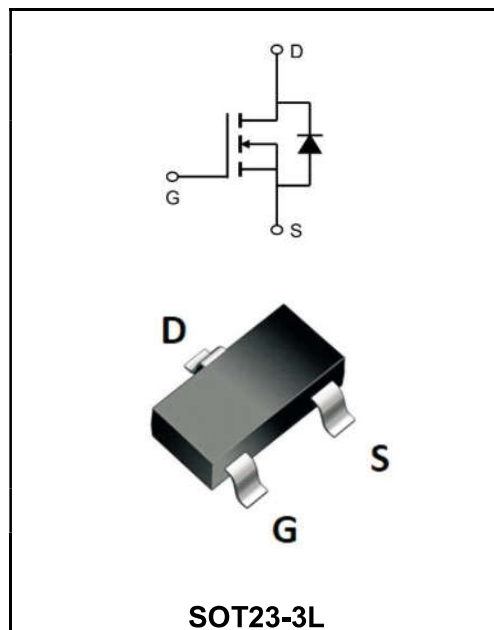
200V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	3.8A
V_{DSS}	200V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 580mΩ (Type:450 mΩ)

Application

- ♦Automotive lighting
- ♦Load switch
- ♦Uninterruptible power supply



SOT23-3L

Marking Code

YFW4N20MI	YFW4N20MIXXXXX
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Maximum Ratings at $T_C=25^{\circ}C$ unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	200	V
Gate - Source Voltage	V_{GS}	± 20	V
Drain Current, V_{GS} @ 10V @ $T_C=25^{\circ}C$	I_D	3.8	A
Drain Current, V_{GS} @ 10V @ $T_C=100^{\circ}C$	I_D	1.85	A
Pulsed Drain Current ¹	I_{DM}	10	A
Total Power Dissipation @ $T_C=25^{\circ}C$	P_D	2	W
Total Power Dissipation ³ @ $T_A=25^{\circ}C$	P_D	1.1	W
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}C$
Operating Junction Temperature Range	T_J	-55 to +150	$^{\circ}C$
Maximum Thermal Resistance, Junction ambient	$R_{\theta JA}$	85	$^{\circ}C/W$
Maximum Thermal Resistance, Junction-case	$R_{\theta JA}$	3.9	$^{\circ}C/W$

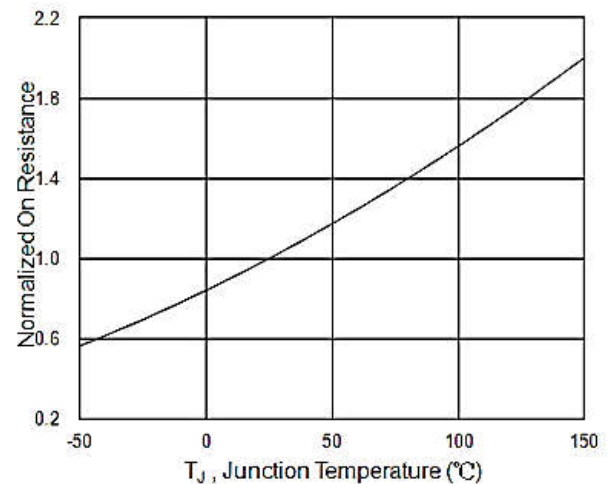
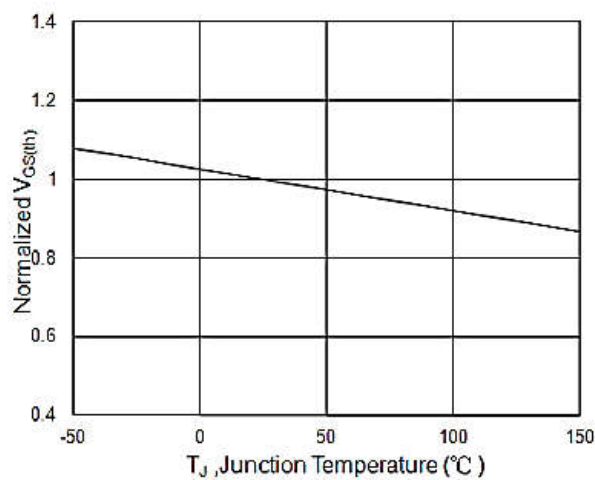
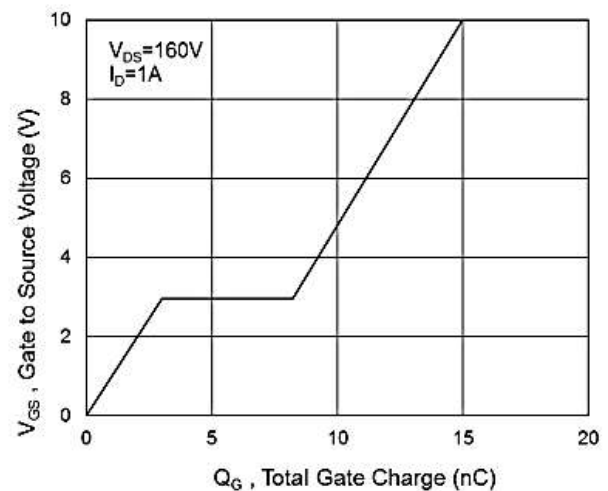
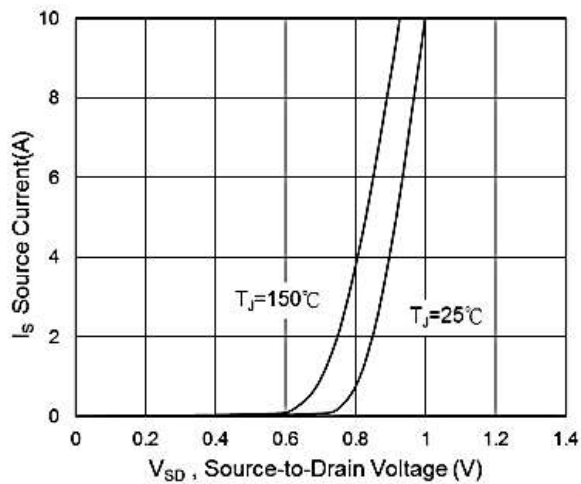
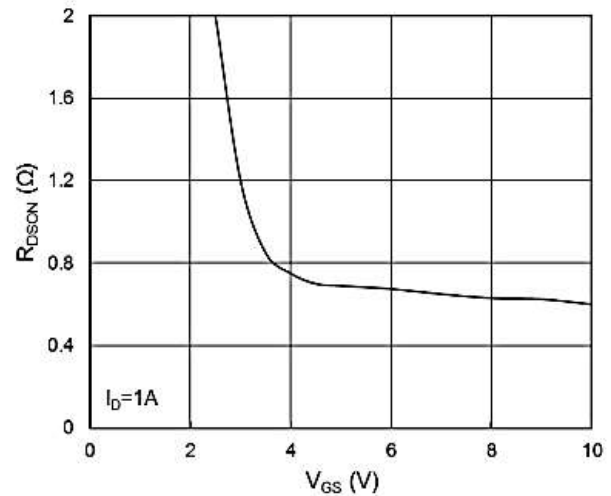
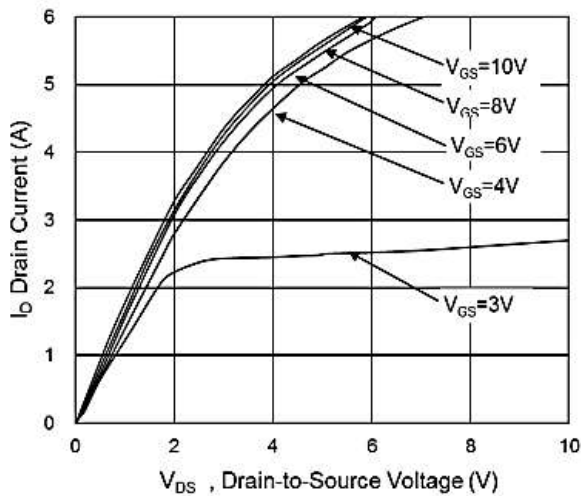
Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	200	230	-	V
Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=1A$	$R_{DS(ON)}$	-	450	580	mΩ
	$V_{GS}=4.5V, I_D=1A$		-	680	850	
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	2	2.5	V
Drain-Source Leakage Current	$V_{DS}=200V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
Gate- Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Forward Transconductance	$V_{DS}=10V, I_D=1V$	g_{fs}	-	10	-	S
Total Gate Charge(10V)	$V_{DS}=160V$ $V_{GS}=10V$ $I_D=1A$	Q_g	-	15	-	nC
Gate-Source Charge		Q_{gs}	-	3.0	-	
Gate-Drain Charge		Q_{gd}	-	5.2	-	
Turn-on delay time	$V_{DD}=100V$ $V_{GS}=10V$ $R_G=3$ $I_D=1A$	$t_{d(on)}$	-	22	-	ns
Rise Time		T_r	-	34	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	45	-	
Fall Time		t_f	-	11	-	
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	900	-	pF
Output Capacitance		C_{oss}	-	130	-	
Reverse Transfer Capacitance		C_{rss}	-	4.6	-	
Continuous Source Current ^{1,6}	$V_G=V_D=0V$, Force Current	I_S	-	-	1	A
Diode Forward Voltage ²	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	V_{SD}	-	-	1	V
Reverse Recovery Time	$I_F=1A, dI/dt=100A/\mu s, T_J=25^\circ C$	t_{rr}	-	85	-	ns
Reverse Recovery Charge		Q_{rr}	-	257	-	nC

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 $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、The power dissipation is limited by 150°C 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



Ratings and Characteristic Curves

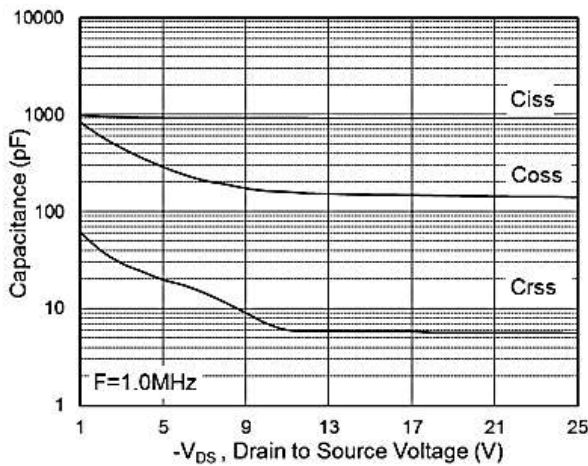


Fig.7 Capacitance

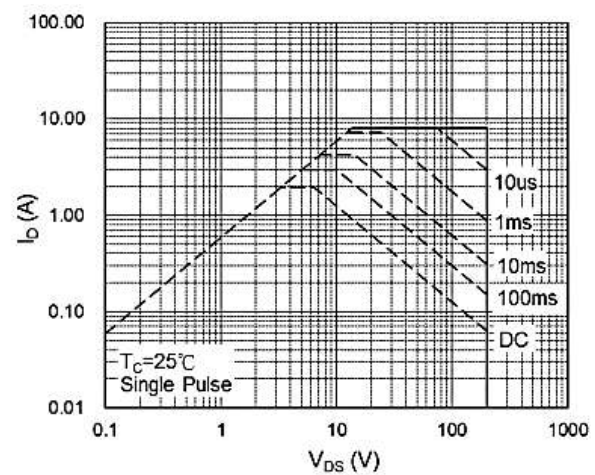


Fig.8 Safe Operating Area

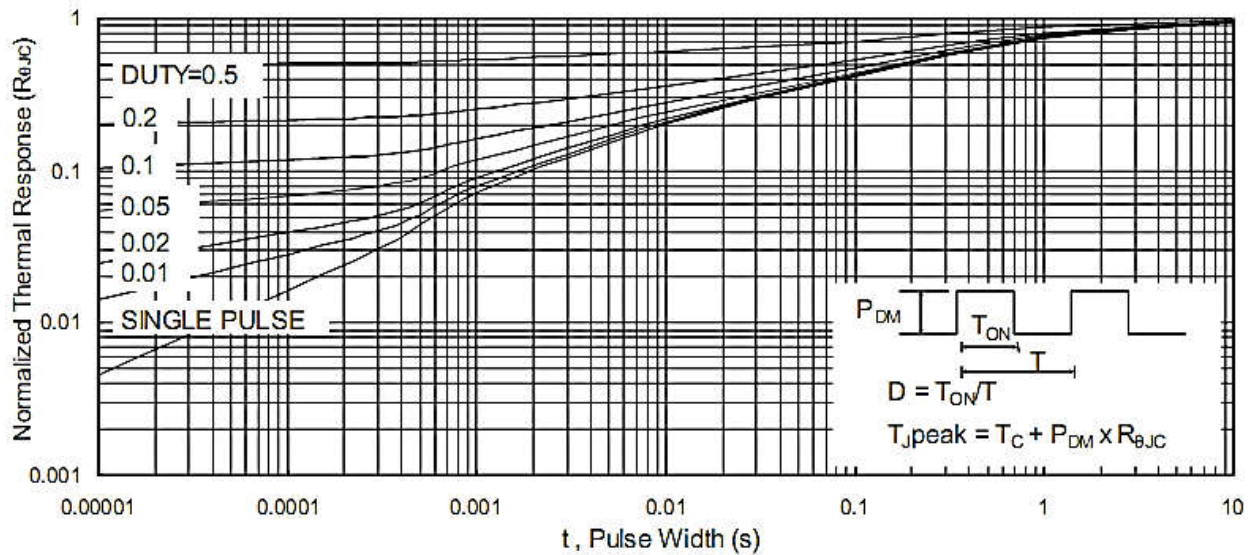


Fig.9 Normalized Maximum Transient Thermal Impedance

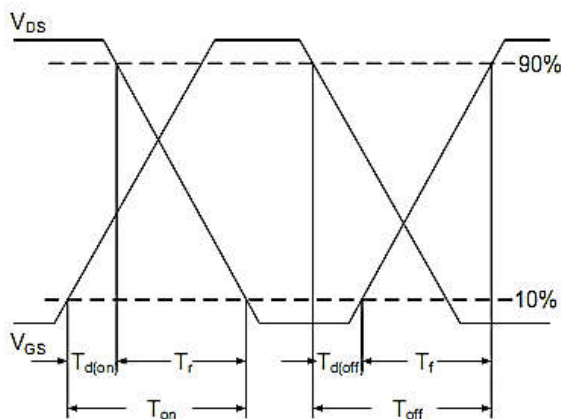


Fig.10 Switching Time Waveform

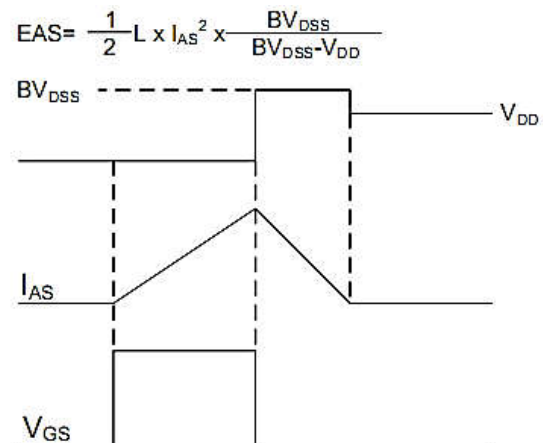


Fig.11 Unclamped Inductive Switching Waveform

Ordering information

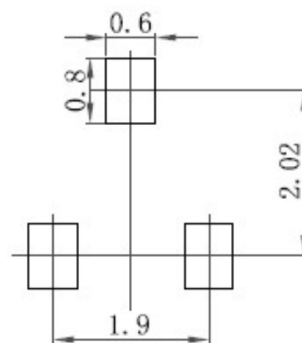
Package	Packing Description	Base Quantity	Packing Quantity
SOT23-3L	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

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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