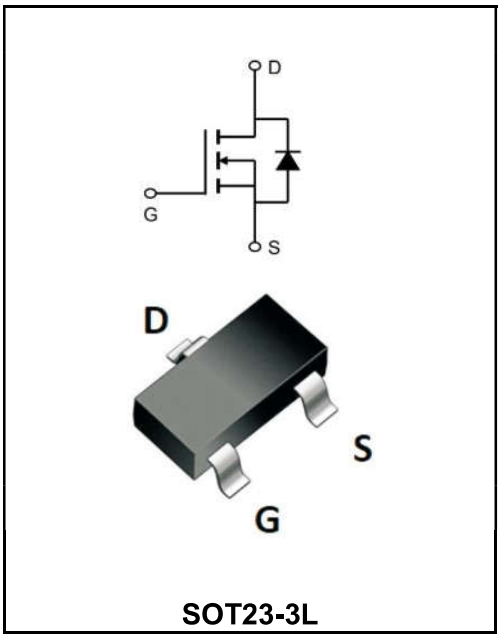
100V N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	5A
V_{DSS}	100V
R_{DSON}-MAX(@V_{GS}=10V)	＜138mΩ
R_{DSON}-MAX(@V_{GS}=4.5V)	＜185mΩ



SOT23-3L

Marking Code	
YFW5N10MI	5N10

Features & Applications

- Low RDS(on) & FOM
- Extremely low switching loss.
- Excellent stability and uniformity.
- Fast switching and soft recovery
- Consumer electronic power supply
- Motor control
- Synchronous-rectification
- Isolated DC/DC convertor

Mechanical Data

- SOT23-3L Small Outline Plastic Package.
- Epoxy UL: 94V-0.
- Mounting Position: Any.

Maximum Ratings & Thermal Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameters	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current (note 1)	I_{DM}	15	
Power Dissipation	P_D	400	mW
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55-+150	℃
Thermal Resistance From Junction to Ambient (note 2)	$R_{\theta JA}$	85	℃/W

Electrical Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	100	-	-	V
Gate-Threshold voltage(note 3)	$V_{GS\ (th)}$	V_{DS}=V_{GS}, I_D=250uA	1.0	1.6	2.5	V
Gate-body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
Zero Gate Voltage Drain current	I_{DSS}	V_{DS}=80V, V_{GS}=0V	-	-	1	uA
Drain-Source On-Resistance (note 3)	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A			138	mΩ
		V_{GS}=4.5V, I_D=10A	-	-	185	mΩ
Diode forward voltage (note 3)	V_{SD}	I_S=3A, V_{GS}=0V			1.2	V
Input capacitance	C_{iss}	V_{DS}=50V V_{GS}=0V f=1MHz	-	200	-	pF
Output capacitance	C_{oss}		-	30	-	
Reverse Transfer capacitance	C_{rss}		-	2	-	
Total gate charge	Q_g	V_{DS}=50V V_{GS}=10V I_D=3A	-	4	-	nC
Gate-source charge	Q_{gs}		-	0.5	-	
Gate-drain charge	Q_{gd}		-	1.4	-	
Turn-on Time	$t_{d(on)}$	V_{DS}=50V, V_{GS}=10V, I_D=3A, R_G=2.0Ω	-	12.5	-	ns
Rise time	t_r		-	19.3	-	
Turn-off Time	$t_{d(off)}$		-	20	-	
Fall time	t_f		-	28	-	

Notes:
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, t≤10s
3. Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%.
4. Guaranteed by design, not subject to producting.

Ratings and Characteristic Curves

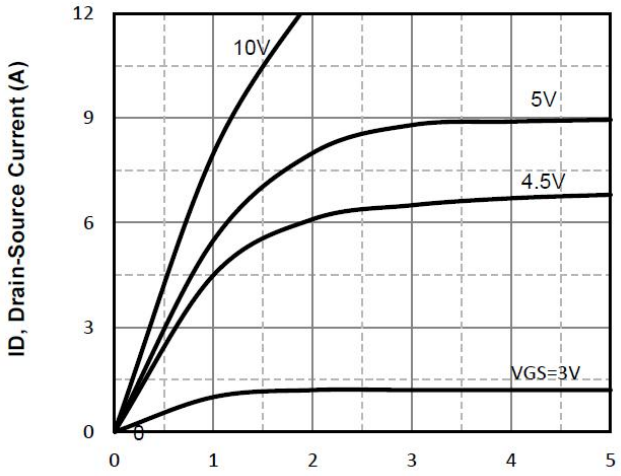


Fig1. Typical Output Characteristics

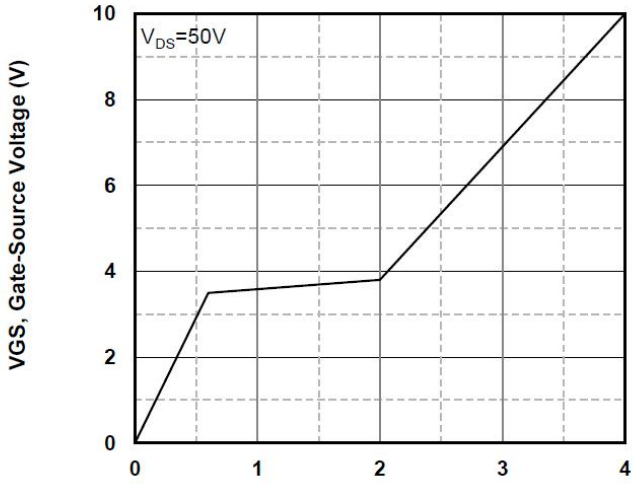


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

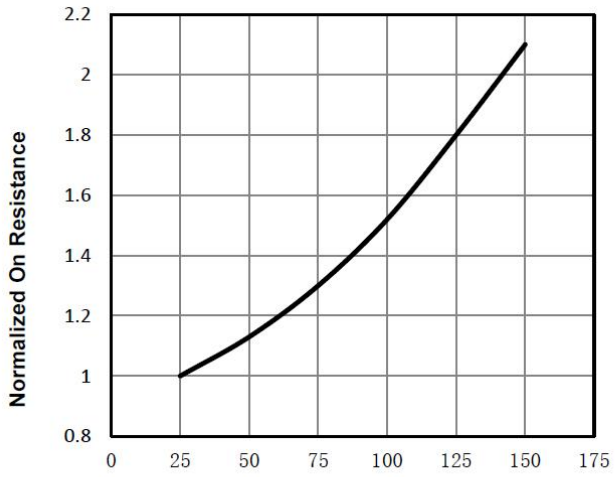


Fig3. Normalized On-Resistance Vs. Temperature

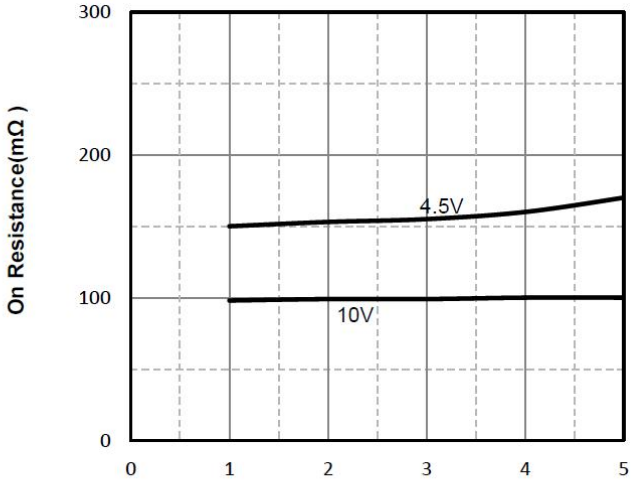


Fig4. On-Resistance Vs. Drain-Source Current

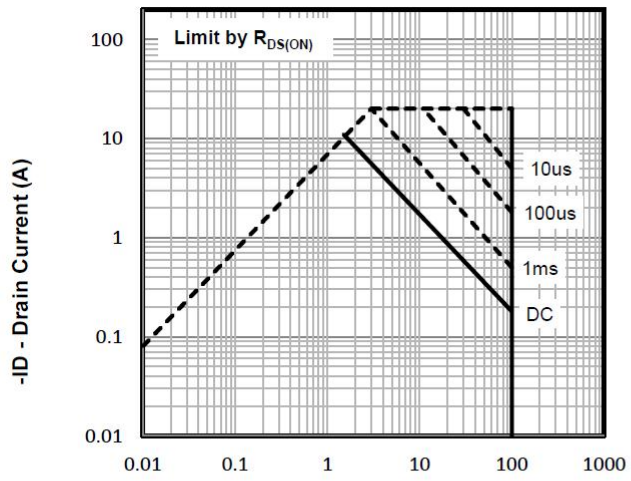


Fig5. Maximum Safe Operating Area

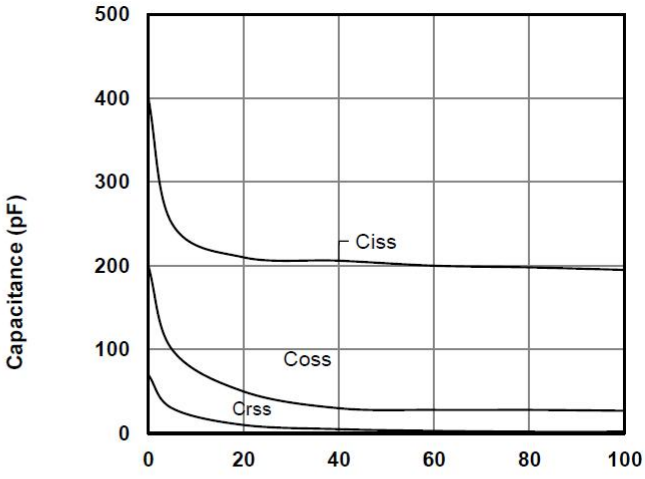


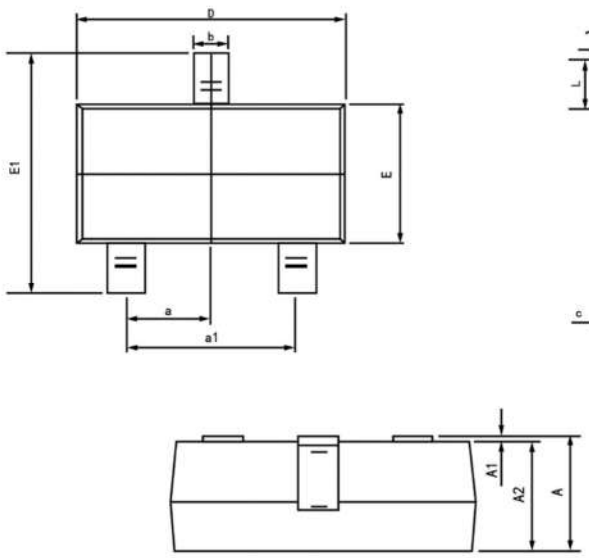
Fig6 Typical Capacitance Vs.Drain-Source Voltage

Ordering information

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

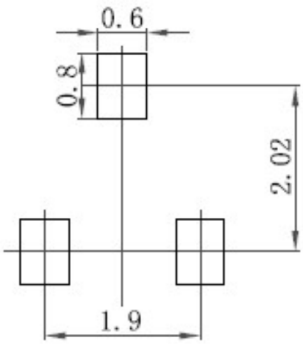
Package Dimensions

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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