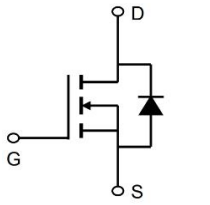
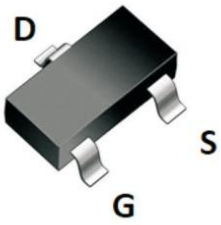
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	5A
V_{DS}	100V
R_{DSON}-typ(@V_{GS}=10V)	＜138mΩ(Typ:108mΩ)





SOT-23

Marking Code	
YFW5N10B	5N10

FEATURES

- Low RDS(on) & FOM
- Extremely low switching loss.
- Excellent stability and uniformity.
- Fast switching and soft recovery

APPLICATION

- Consumer electronic power supply
- Motor control
- Synchronous-rectification
- Isolated DC/DC convertor

MECHANICAL DATA

- Case: SOT-23
- Epoxy UL: 94V-0
- Mounting Position: Any

Maximum Ratings at Tc=25°C unless otherwise specified

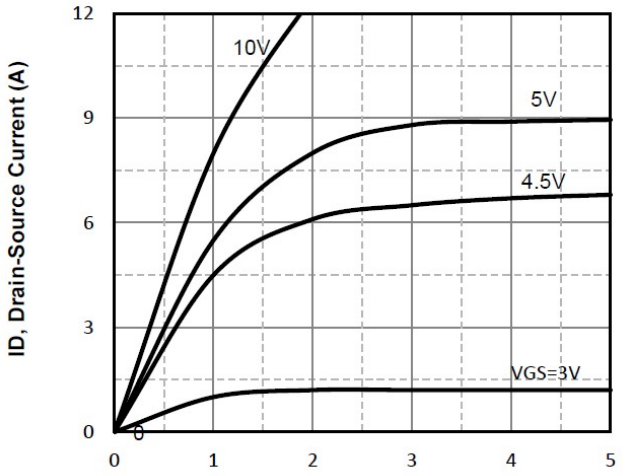
Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current (note1)	I_{DM}	15	A
Maximum Power Dissipation	P_D	400	mW
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-50 to +150	°C
Thermal Resistance, Junction to Ambient(note2)	$R_{\theta JA}$	85	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

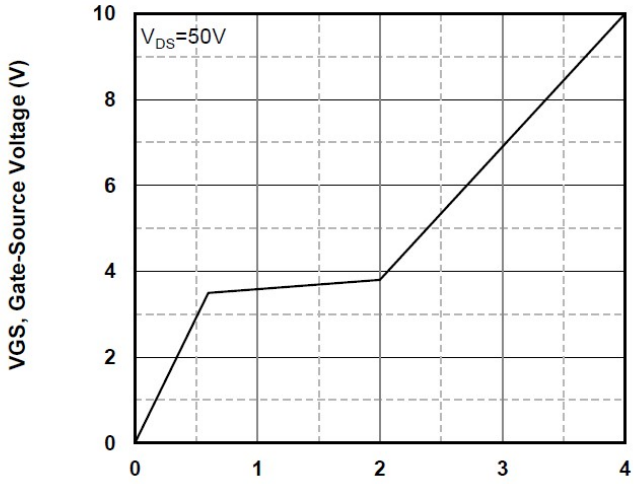
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	BV_{DSS}	100	-	-	V
Gate-Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current	V_{DS}=100V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate -Threshold Voltage(note3)	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.0	1.6	2.5	V
Drain-Source On-State Resistance(note3)	V_{GS}=10V, I_D=3A	$R_{DS(ON)}$	-	108	138	mΩ
	V_{GS}=4.5V, I_D=2A		-	130	185	
Input Capacitance	V_{DS}=50V V_{GS}=0V f=1.0MHz	C_{iss}	-	200	-	pF
Output Capacitance		C_{oss}	-	30	-	
Reverse Transfer Capacitance		C_{rss}	-	2	-	
Turn-on delay time	V_{DD} = 50V V_{GS} =10V I_D =3A R_G=2.0Ω	$t_{d(on)}$	-	12.5	-	ns
Turn-on Rise Time		T_r	-	19.3	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	20	-	
Turn-Off Fall Time		t_f	-	28	-	
Total Gate Charge	V_{DS} = 50V, V_{GS} =10V, I_D=3A	Q_g	-	4	-	nC
Gate-Source Charge		Q_{gs}	-	0.5	-	
Gate-Drain Charge		Q_{gd}	-	1.4	-	
Body Diode Voltage(note3)	I_S = 3A, V_{GS} = 0V	V_{SD}	-	-	1.2	V

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.

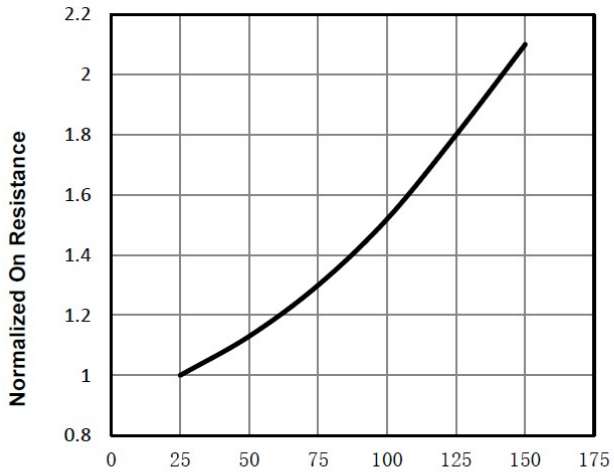
Typical Characteristics



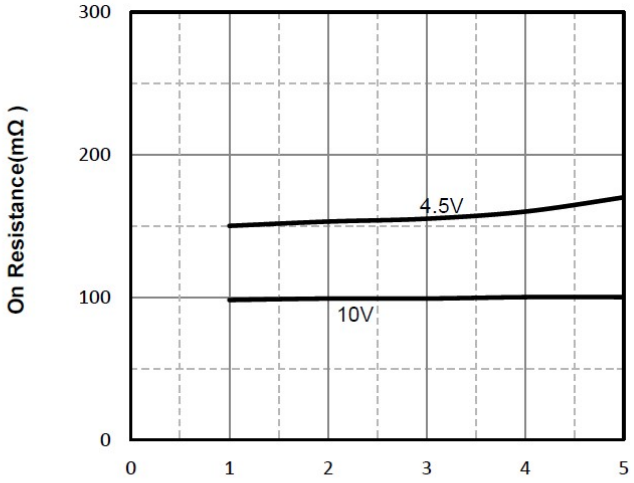
VDS, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



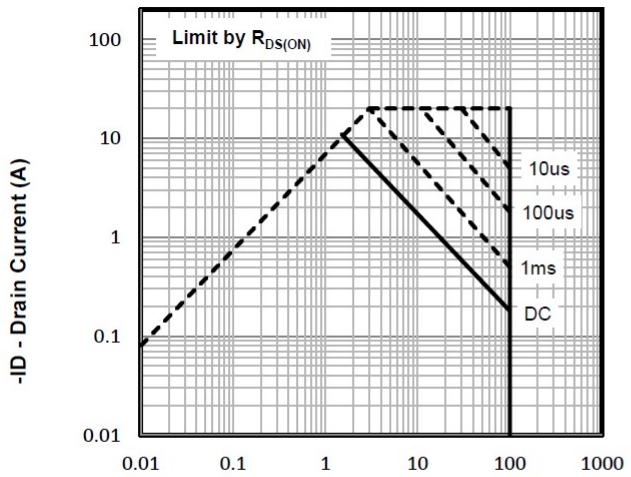
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs.Gate-Source Voltage



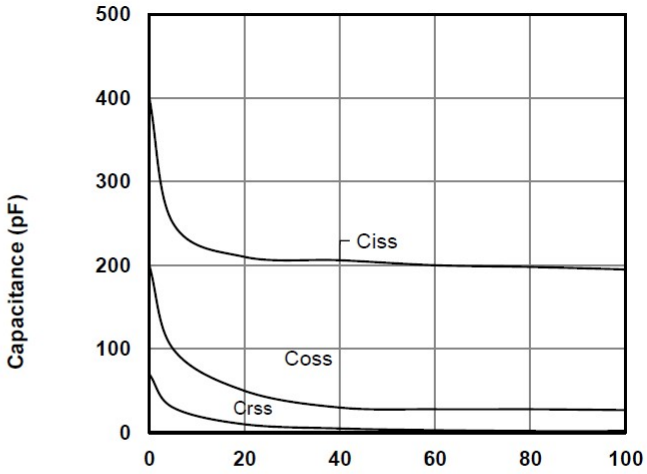
Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



ID, Drain-Source Current (A)
Fig4. On-Resistance Vs. Drain-Source Current



VDS, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



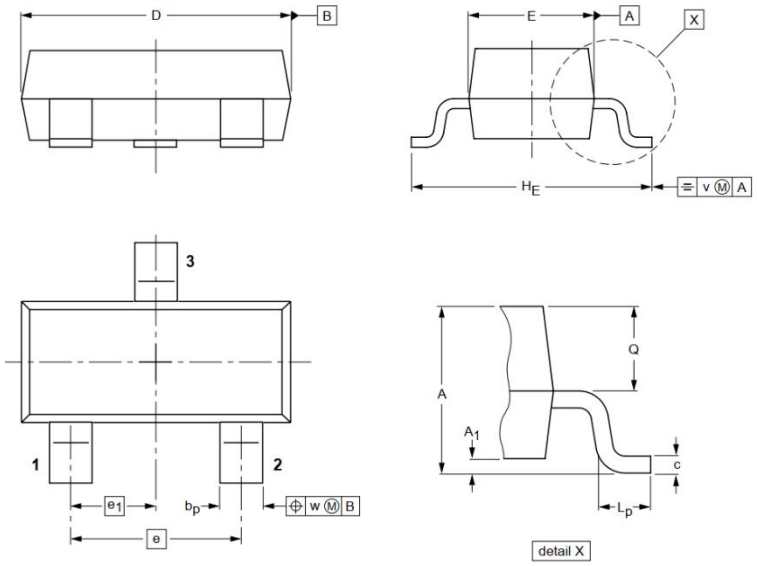
VDS , Drain-Source Voltage (V)
Fig6 Typical Capacitance Vs.Drain-Source Voltage

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

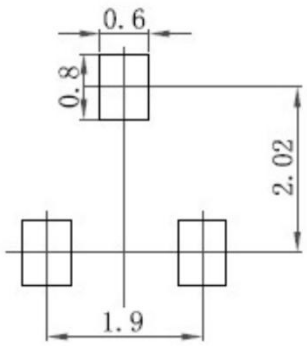
Package Dimensions

SOT-23



Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
e	1.9		75	
e1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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