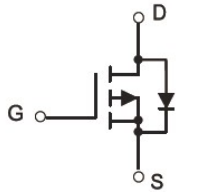
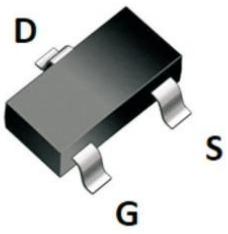
-60V P-Channel Plastic-Encapsulate MOSFET

MAIN CHARACTERISTICS

I_D	-3A
V_{DSS}	-60V
R_{DSON}-typ(@V_{GS}-10V)	＜150mΩ(Typ:130mΩ)





SOT-23

Marking Code	
YFW3P06A	S9

Features

- Energy Efficient
- Low Threshold Voltage
- High-speed Switching.
- DC/DC Converter.

Mechanical Data

- SOT-23 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}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(note1)	I_D	-3	A
Pulsed Drain Current (note2)	I_{DM}	-7	A
Power Dissipation(note3)	P_D	1	W
Junction Temperature	T_j	150	℃
Storage Temperature	Tstg	-50-+150	℃
Thermal Resistance From Junction to Ambient(note1)	$R_{\theta JA}$	125	℃/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	-60			V
Gate-Threshold voltage	$V_{GS\ (th)}$	V_{DS}=V_{GS}, I_D=-250uA	-1.0		-2.5	V
Gate-body Leakage	I_{GSS}	VDS=0V, VGS=±20V			±100	nA
Zero Gate Voltage Drain current	I_{DSS}	VDS=-48V, VGS=0V, T_J=25℃			1	uA
		VDS=-48V, VGS=0V, T_J=55℃			5	
Drain-Source On-Resistance(note2)	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-1.5A		130	150	mΩ
		V_{GS}=-4.5V, I_C=-1A		158	200	
Forward trans conductance	g_{fs}	V_{DS}=-5V, I_D=-1.5A		5.9		S
Input capacitance	C_{iss}	V_{DS}=-15V, V_{GS}=0V,f=1MHz		531		pF
Output capacitance	C_{oss}			59		
Reverse Transfer capacitance	C_{rss}			38		
Total gate charge	Q_g	VDS=-20V VGS=-4.5V ID=-1.5A		4.6		nC
Gate-source charge	Q_{gs}			1.4		
Gate-drain charge	Q_{gd}			1.62		
Turn-on Time	$td_{(on)}$	V_{DS}=-15V V_{GS}=-10V R_G=3.3Ω I_D=-1A		17.4		ns
Rise time	tr			5.4		
Turn-off Time	$td_{(off)}$			37.2		
Fall time	t_f			2.4		
Continuous Current(note1) (note4)	Is	V_G=V_D=0V, Force Current			-1.7	A
Pulsed Current(note2) (note4)	I_{SM}				-7	A
Body diode voltage(note2)	V_{SD}	I_S=-1A, V_{GS}=0V			-1.2	V

Notes:
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 ID and IDM , in real applications , should be limited by total power dissipation.

Typical characteristics

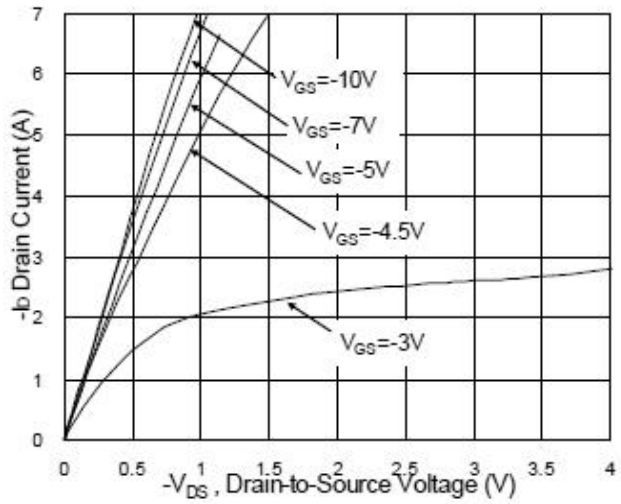


Fig.1 Typical Output Characteristics

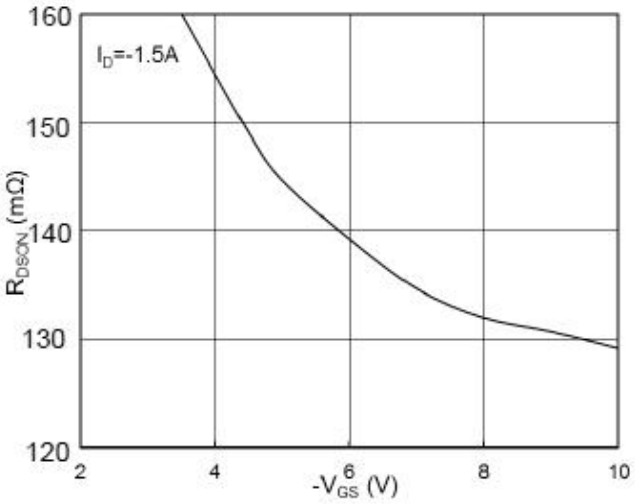


Fig.2 On-Resistance v.s Gate-Source

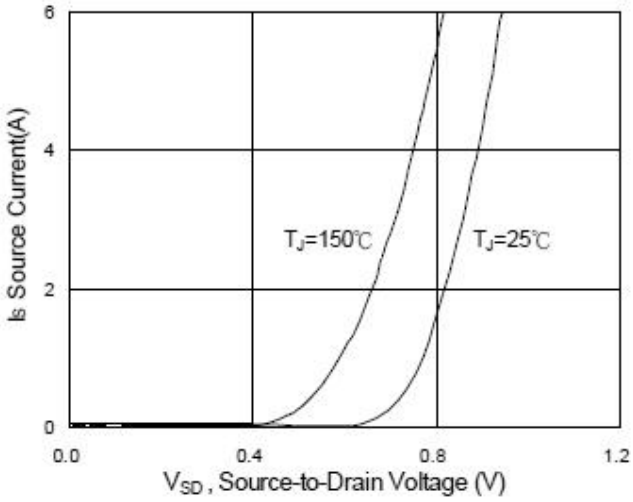


Fig.3 Forward Characteristics Of Reverse

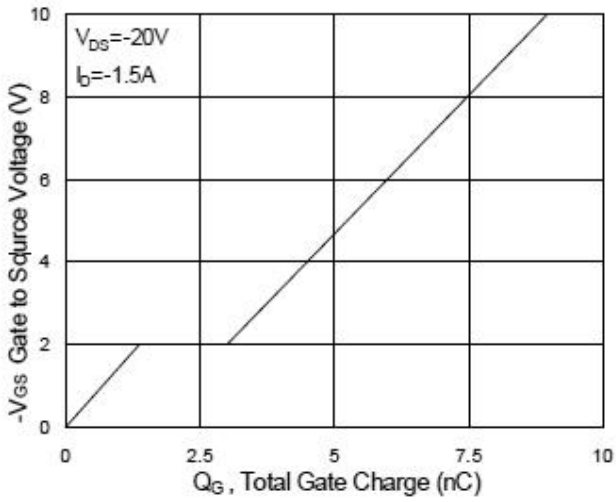


Fig.4 Gate-Charge Characteristics

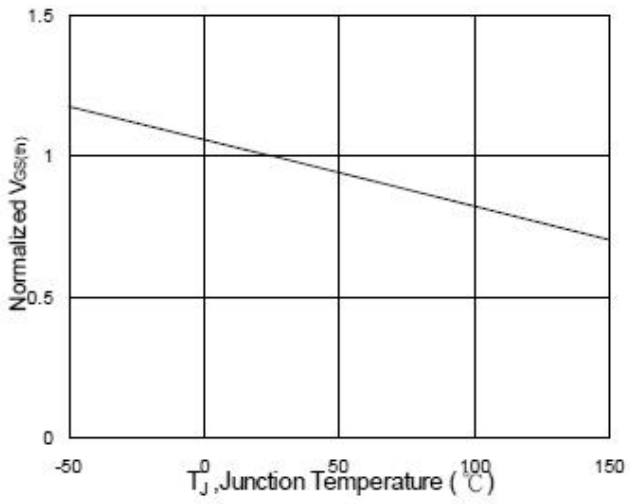


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

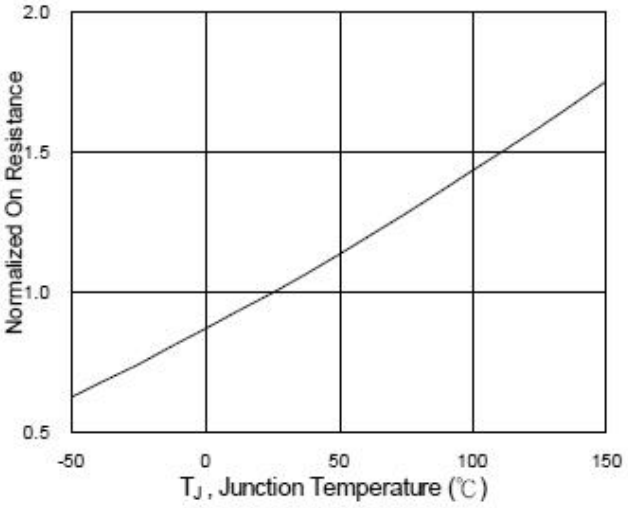


Fig.6 Normalized R_{DSON} v.s T_J

Typical characteristics

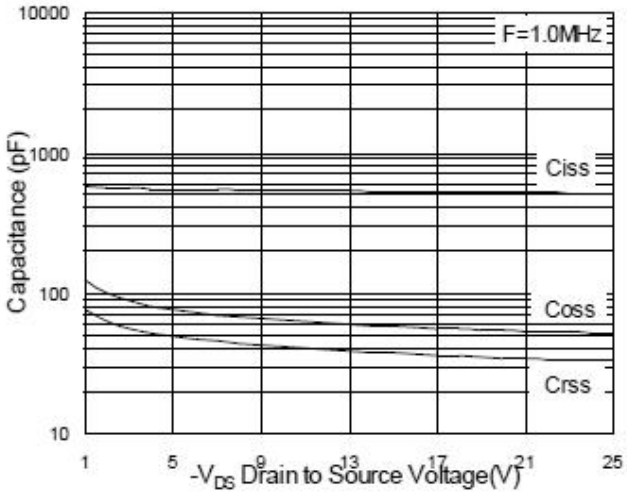


Fig.7 Capacitance

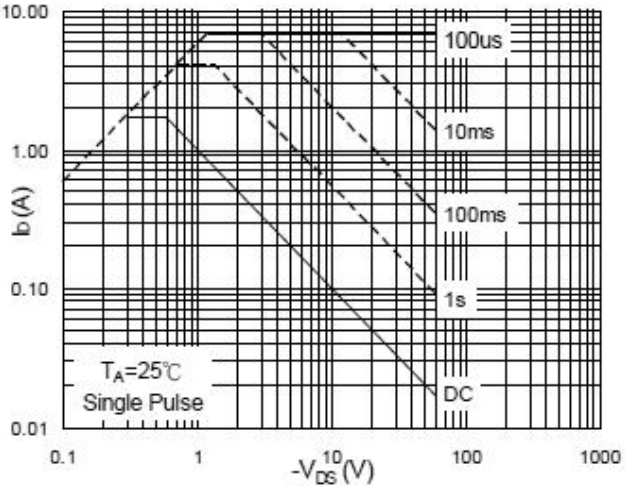


Fig.8 Safe Operating Area

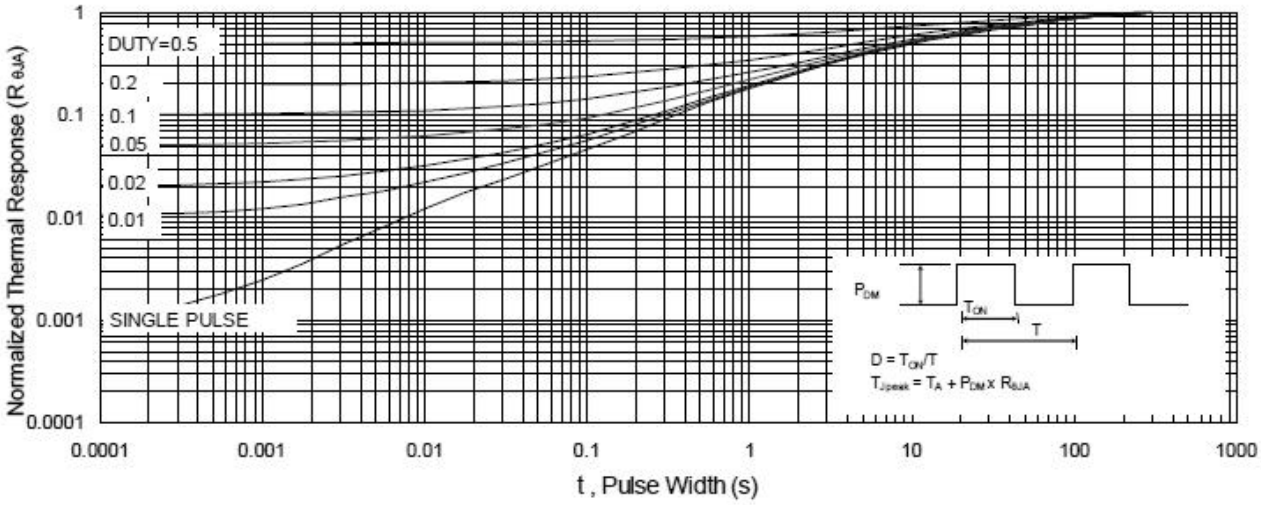


Fig.9 Normalized Maximum Transient Thermal Impedance

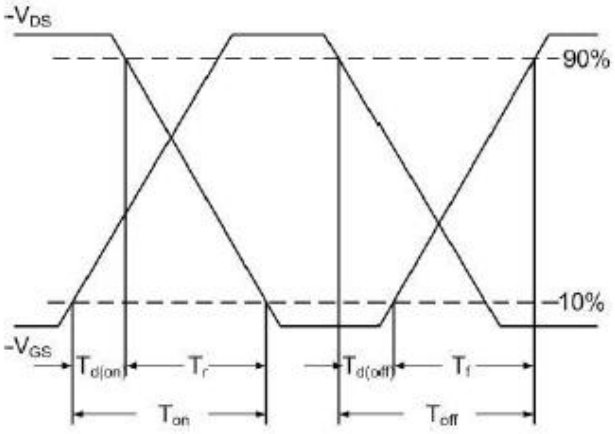


Fig.10 Switching time waveform

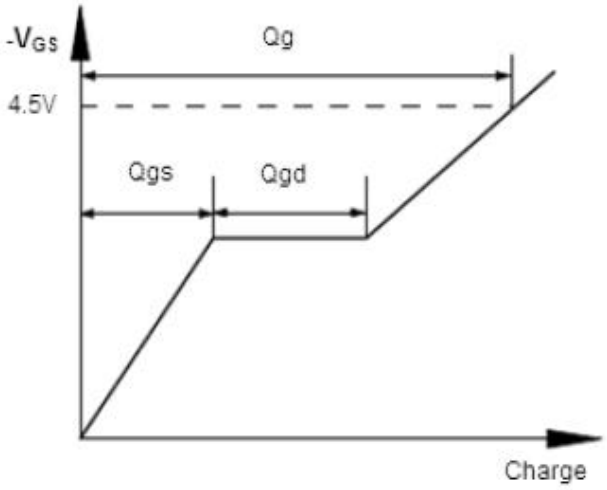


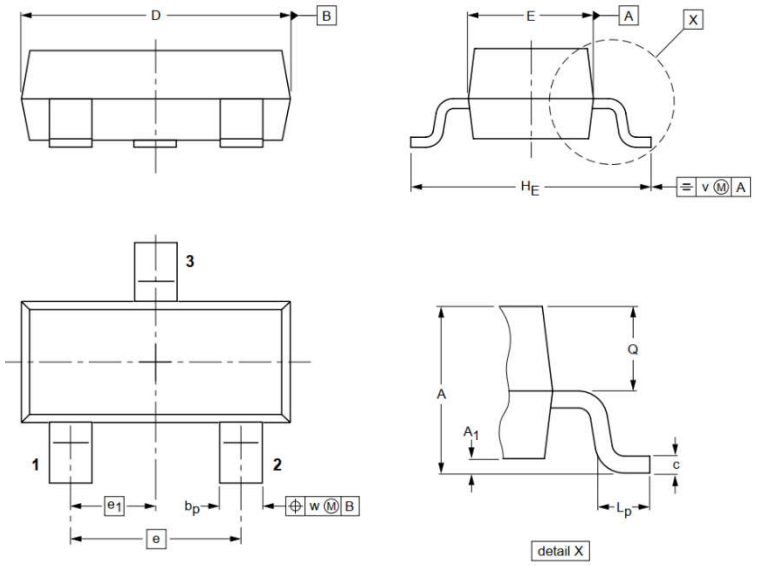
Fig.11 Gate Charge waveform

Ordering information

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

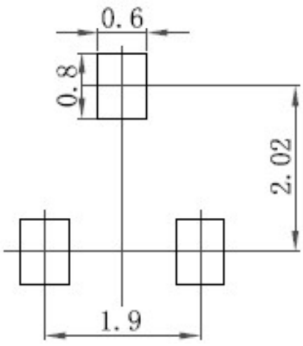
Package Dimensions

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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