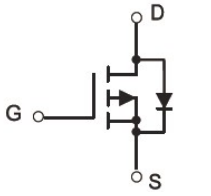
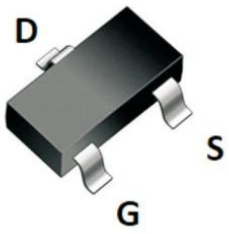
-40V P-Channel Plastic-Encapsulate MOSFET

MAIN CHARACTERISTICS

I_D	-3A
V_{DSS}	-40V
R_{DSON}-typ(@V_{GS}-10V)	＜138mΩ(Typ:110mΩ)
R_{DSON}-typ(@V_{GS}-4.5V)	＜175mΩ(Typ:140mΩ)





SOT-23

FEATURES

- Trench FET Power MOSFET
- Surface Mount device
- DC/DC Converter

Mechanical Data

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

Marking Code	
YFW3P04A	3P04A

Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

Parameter		Symbols	Value	Units
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	TA=25℃ TA=100℃	I_D	-3 -1.9	A
Pulsed Drain Current(Note1)		I_{DM}	-20	A
Total Power Dissipation(Note2)	TA=25℃ TA=100℃	P_D	1 0.4	W
Junction Temperature		T_j	-55-+150	℃
Storage Temperature		Tstg	-55-+150	℃
Thermal Resistance From Junction to Ambient (Note3)		$R_{\theta JA}$	125	℃/W

Electrical Characteristics (Ta=25℃,unless otherwise noted)

arameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-40			V
Gate-Threshold voltage	$V_{GS\ (th)}$	V_{DS}=V_{GS}, I_D=-250uA	-1	-1.8	-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}=-40V, V_{GS}=0V			-1	uA
		V_{DS}=-40V, V_{GS}=0V, T_J=150℃			-100	
Drain-Source On-Resistance(Note1)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-2A		140	175	mΩ
		V_{GS}=-10V, I_D=-3A		110	138	
Body diode voltage	V_{SD}	I_S=-3A, V_{GS}=0		-0.85	-1.2	V
Gate resistance	RG	f=1MHz		20		Ω
Maximum Body-Diode Continuous Current	Is				-3	A
Input capacitance	C_{iss}	V_{DS}=-20V V_{GS}=0V f=1MHz		400		pF
Output capacitance	C_{oss}			50		
Reverse Transfer capacitance	C_{rss}			40		
Total gate charge	Q_g	V_{DS}=-20V V_{GS}=-10V I_D=-3A		8.5		nC
Gate-source charge	Q_{gs}			1		
Gate-drain charge	Q_{gd}			2		
Reverse Recovery Charge	Qrr	I_F=-3A di/dt=100A/us		31		nC
Reverse Recovery Time	trr			34		ns
Turn-on Time	$td_{(on)}$	V_{GS}=-10V V_{DD}=-20V I_D=3A RGEN=3Ω		6		ns
Rise time	tr			6		
Turn-off Time	$td_{(off)}$			31		
Fall time	$td_{(on)}$			19		

Notes:

1.Repetitive rating; pulse width limited by max. junction temperature.

2.Pd is based on max. junction temperature, using junction-case thermal resistance.

3.The value of $R_{\theta JA}$ is measured with the device mounted on the minimum recommend pad size, in the still air environment with TA =25℃. The maximum allowed junction temperature of 150℃. The value in any given application depends on the user's specific board design.

Typical Characteristics

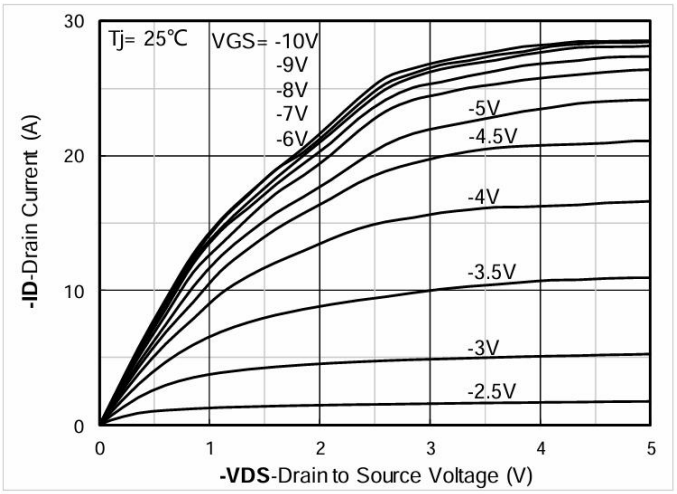


Figure 1. Output Characteristics

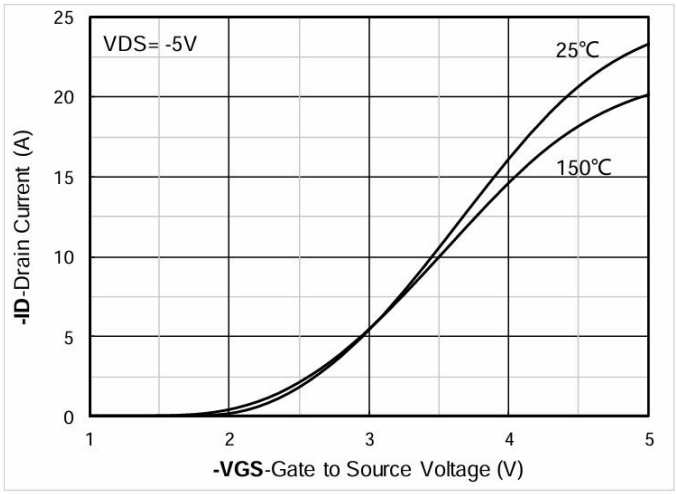


Figure 2. Transfer Characteristics

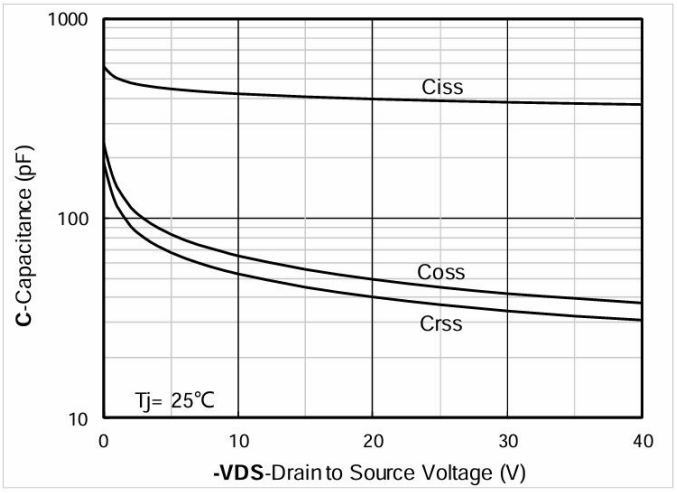


Figure 3. Capacitance Characteristics

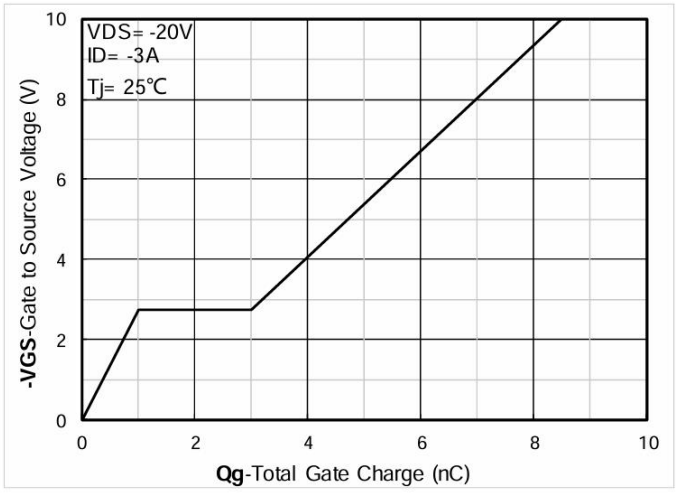


Figure 4. Gate Charge

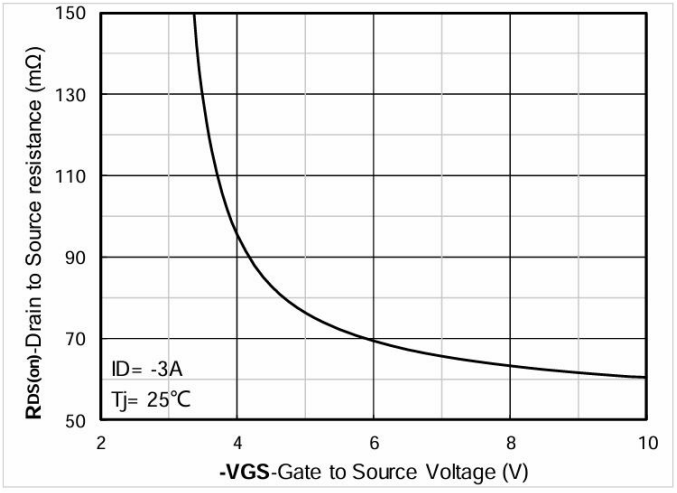


Figure 5. On-Resistance vs Gate to Source Voltage

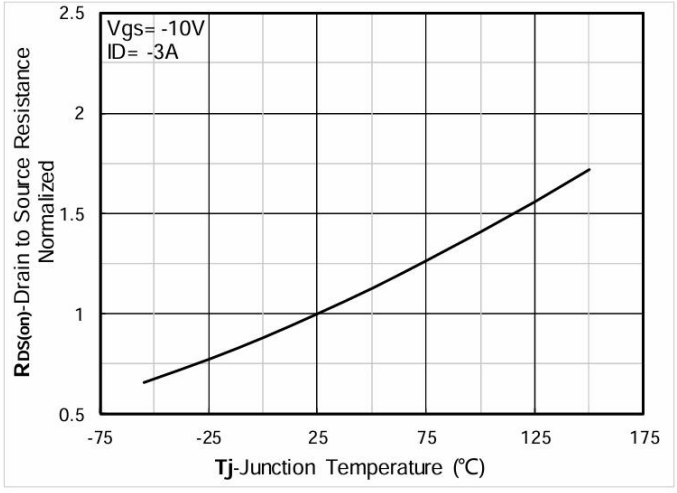


Figure 6. Normalized On-Resistance

Typical Characteristics

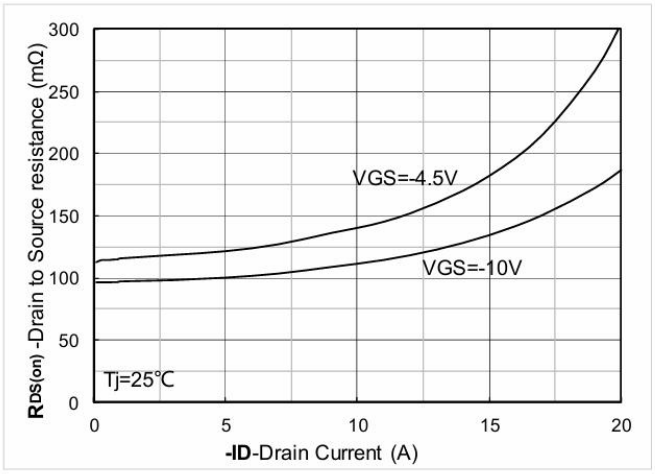


Figure 7. RDS(on) VS Drain Current; typical values

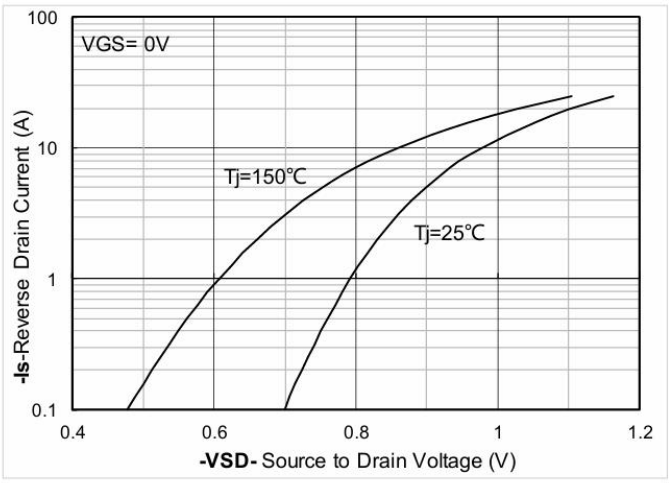


Figure 8. Forward characteristics of reverse diode; typical values

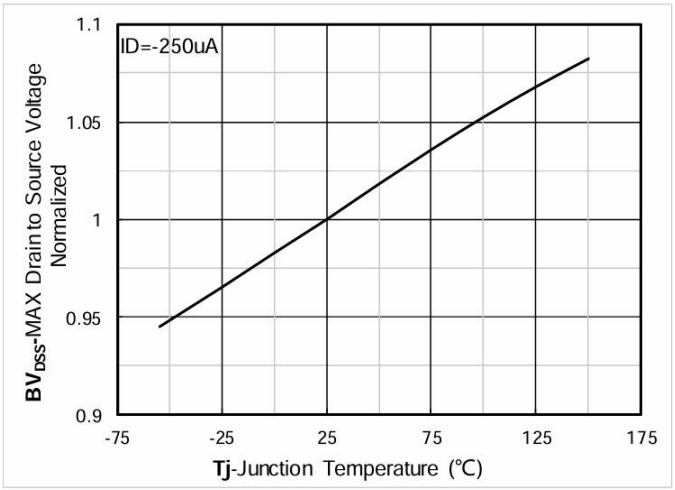


Figure 9. Normalized breakdown voltage

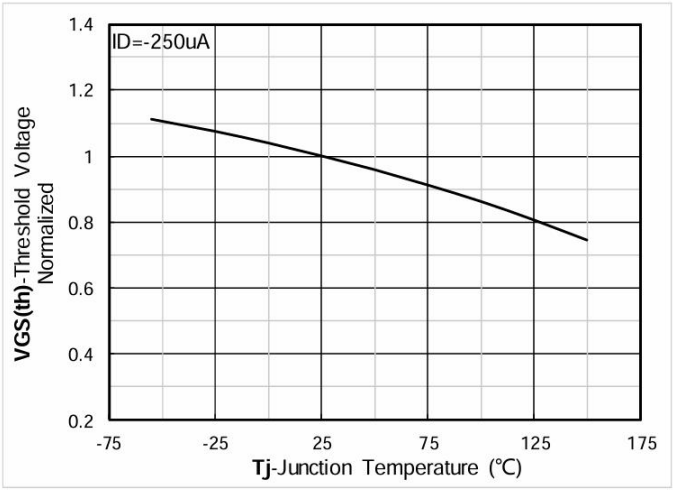


Figure 10. Normalized Threshold voltage

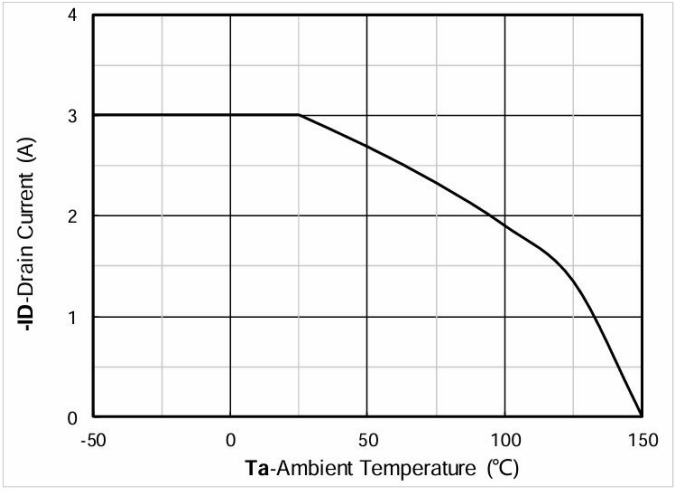


Figure 11. Current dissipation

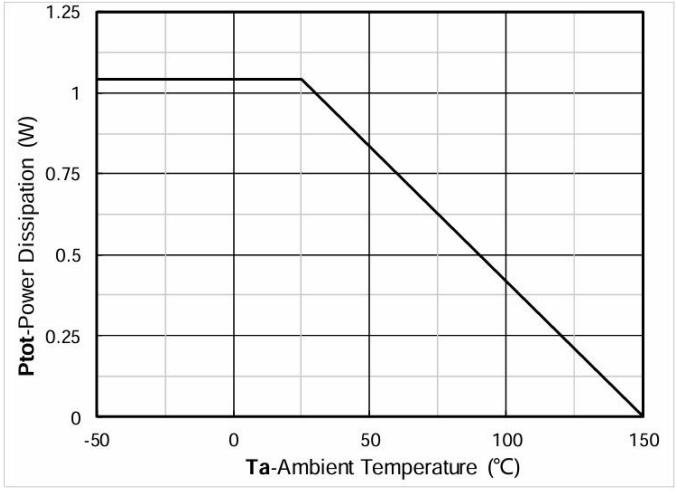


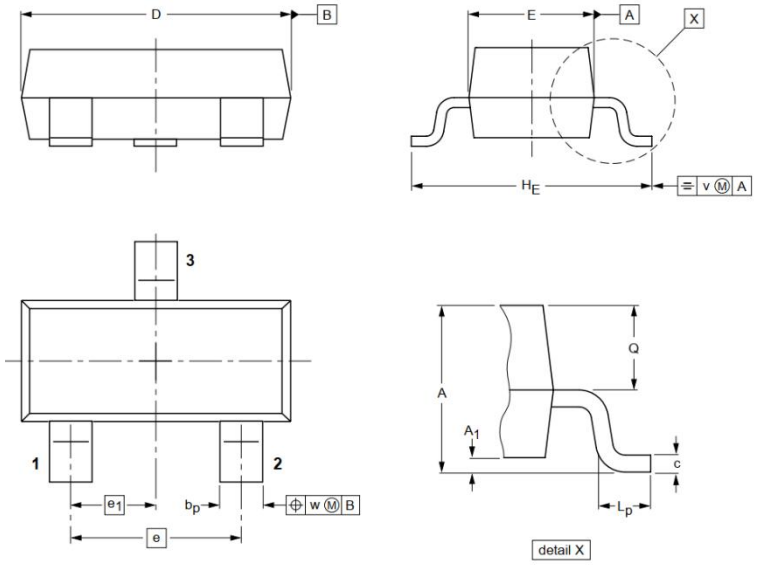
Figure 12. Power dissipation

Ordering information

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

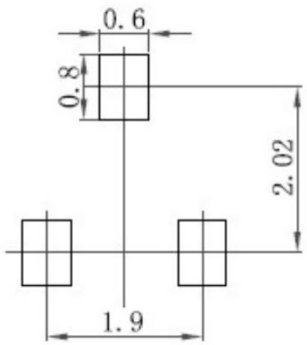
Package Dimensions

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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