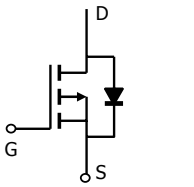
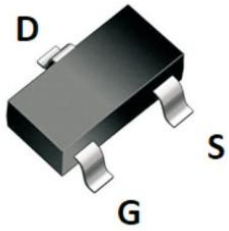
-40V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-5A
V_{DSS}	-40V
R_{DSON}-typ(@V_{GS}=-10V)	＜85mΩ(Typ:65 mΩ)
R_{DSON}-typ(@V_{GS}=-4.5V)	＜120mΩ(Typ:90 mΩ)





SOT-23

Marking Code	
YFW5P04A	5P04A

Features

- Advanced Trench Technology
- Lead free product is acquired
- Interfacing Switching
- Load Switching
- Power management

Mechanical Data

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

Maximum Ratings & Thermal Characteristics(Ratings at 25℃ ambient temperature unless otherwise specified.)

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-40	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Ta =25℃)	I_D	-5	A
Continuous Drain Current (Ta =70℃)	I_D	-3.5	A
Pulsed Drain Current	I_{DM}	-20	A
Power Dissipation	P_D	2	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55-+150	°C
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	62.5	°C/W

Electrical Characteristics(Ratings at 25℃ ambient temperature unless otherwise specified).

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	**V(BR)DSS**	-40	-	-	**V**
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	**$V_{GS(th)}$**	-1	-1.6	-2.5	**V**
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	**I_{GSS}**	-	-	±150	**nA**
Zero Gate Voltage Drain Current	V_{DS}=-40V , V_{GS}=0V	**I_{DSS}**	-	-	-1.0	**μA**
Static Drain-Source on-Resistance (note3)	V_{GS}= -10V, I_D=-3A	**$R_{DS(ON)}$**	-	65	85	**mΩ**
	V_{GS}=- 4.5V, I_D=-2A		-	90	120	
Input Capacitance	V_{DS}=-20V V_{GS}=0V f=1MHz	**C_{iss}**	-	596	-	**pF**
Output Capacitance		**C_{oss}**	-	90	-	
Reverse Transfer Capacitance		**C_{rss}**	-	70	-	
Total gate charge	V_{DS}=-20V V_{GS}=-10V I_D=-3A	**Q_g**	-	14	-	**nC**
Gate-source charge		**Q_{gs}**	-	2.9	-	
Gate-drain charge		**Q_{gd}**	-	3.8	-	
Turn-on Time	VDD=-20V ID=-3A VGS=-10V RG=3Ω	**$t_{d(on)}$**	-	9	-	**ns**
Rise time		**T_r**	-	8	-	
Turn-off Time		**$t_{d(OFF)}$**	-	28	-	
Fall time		**t_f**	-	10	-	
Diode Forward current		**I_S**			-4	**A**
Diode forward voltage	IS=-0.3A, VGS =0V	**V_{SD}**	-	-	1.2	**V**

Test Circuit

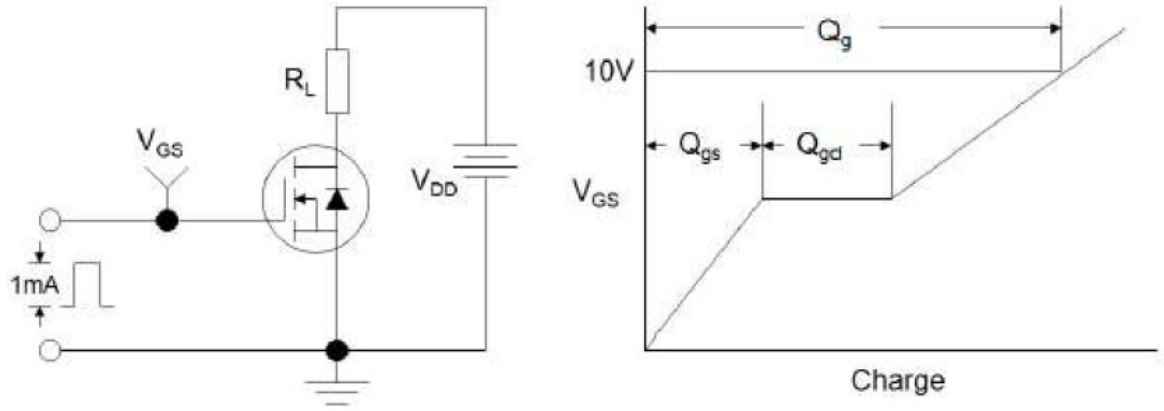


Figure1:Gate Charge Test Circuit & Waveform

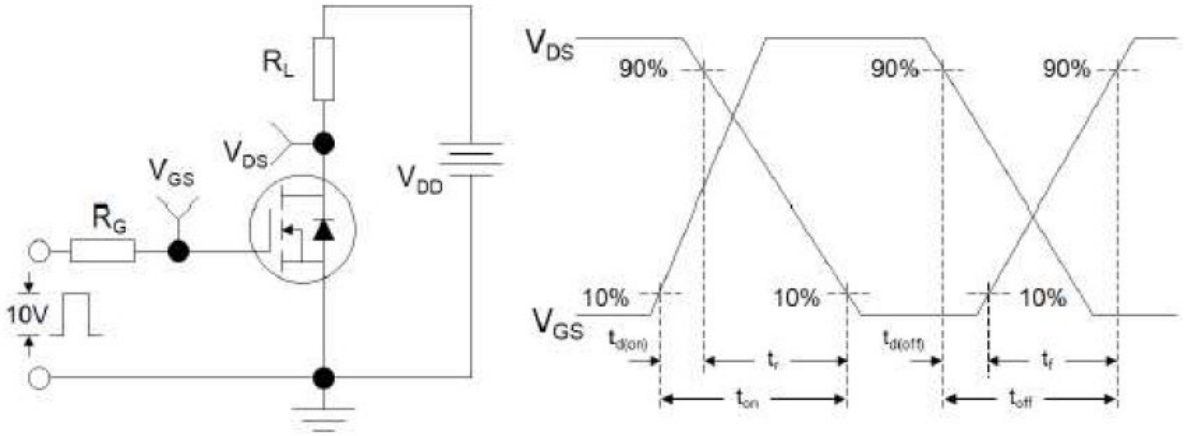


Figure 2: Resistive Switching Test Circuit & Waveforms

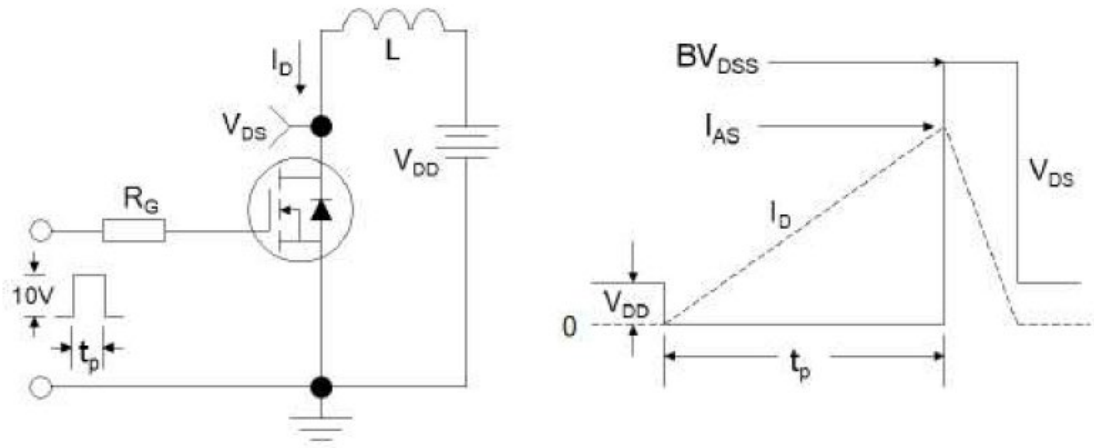


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

Typical characteristics

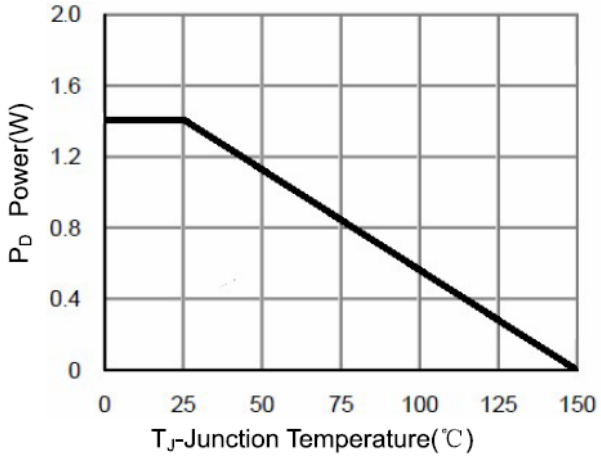


Figure 1 Power Dissipation

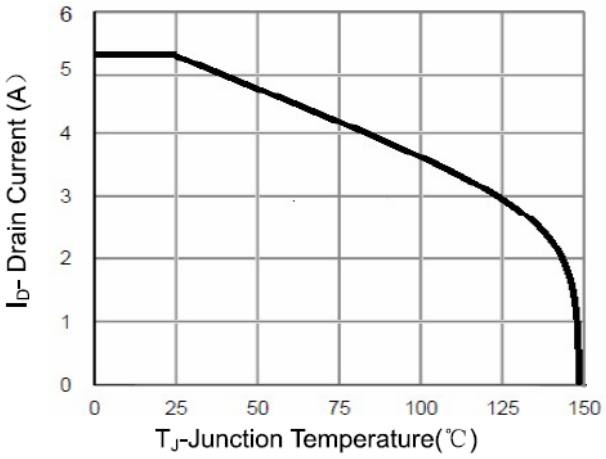
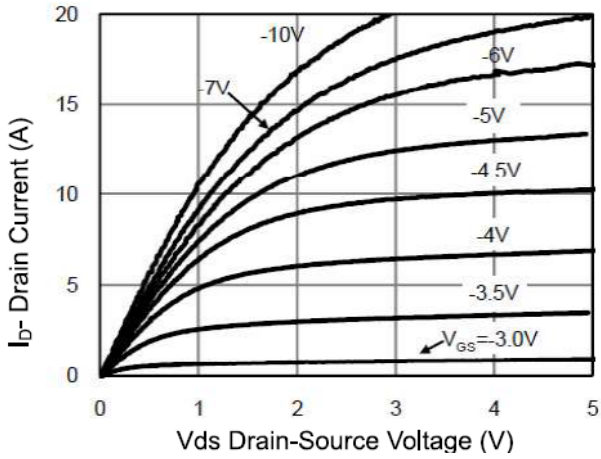
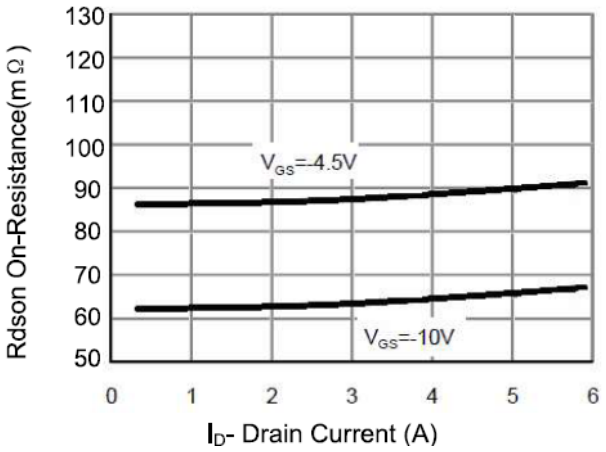


Figure 2 Drain Current





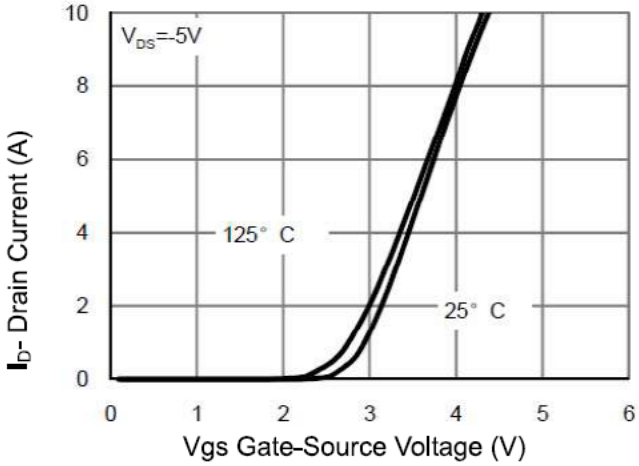


Figure 5 Transfer Characteristics

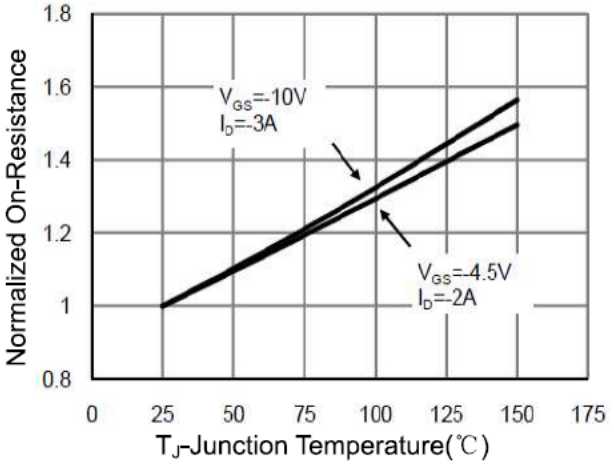


Figure 6 Drain-Source On-Resistance

Typical characteristics

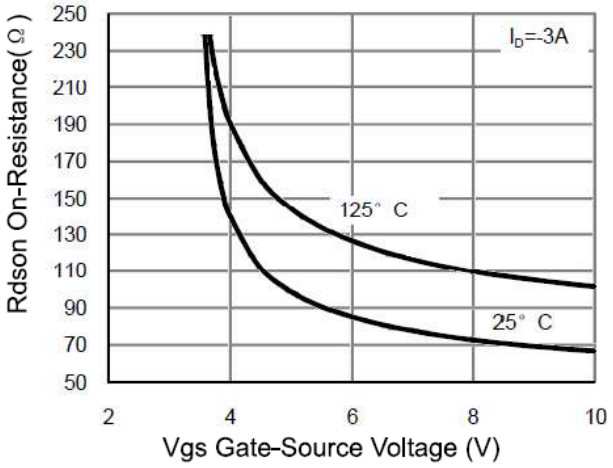


Figure 7 Rdson vs Vgs

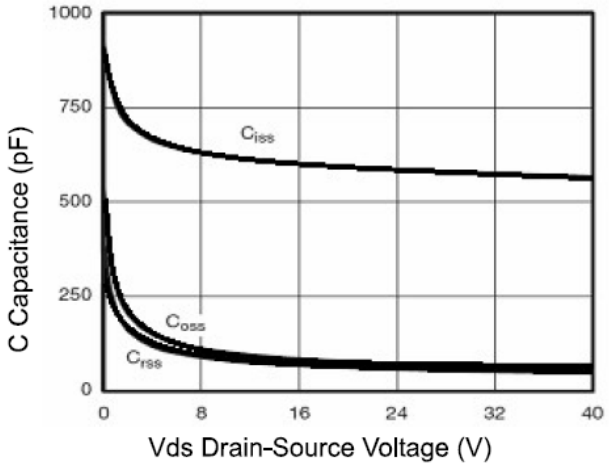


Figure 8 Capacitance vs Vds

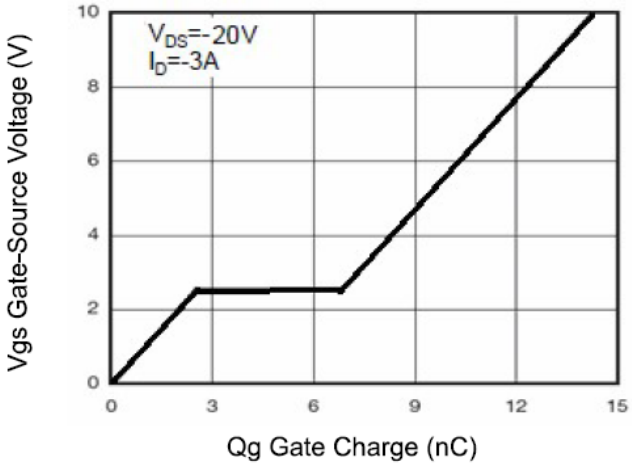


Figure 9 Gate Charge

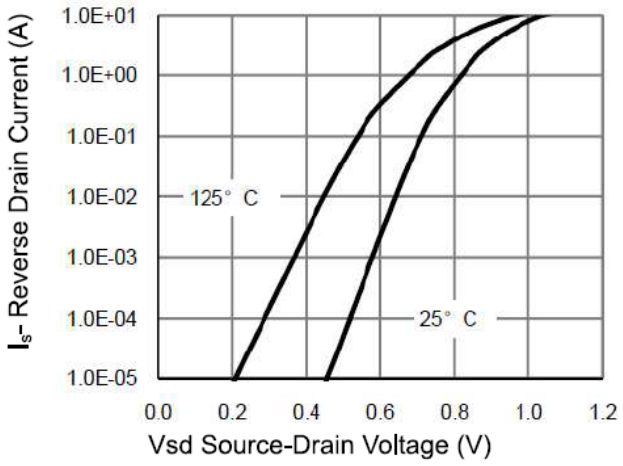


Figure 10 Source- Drain Diode Forward

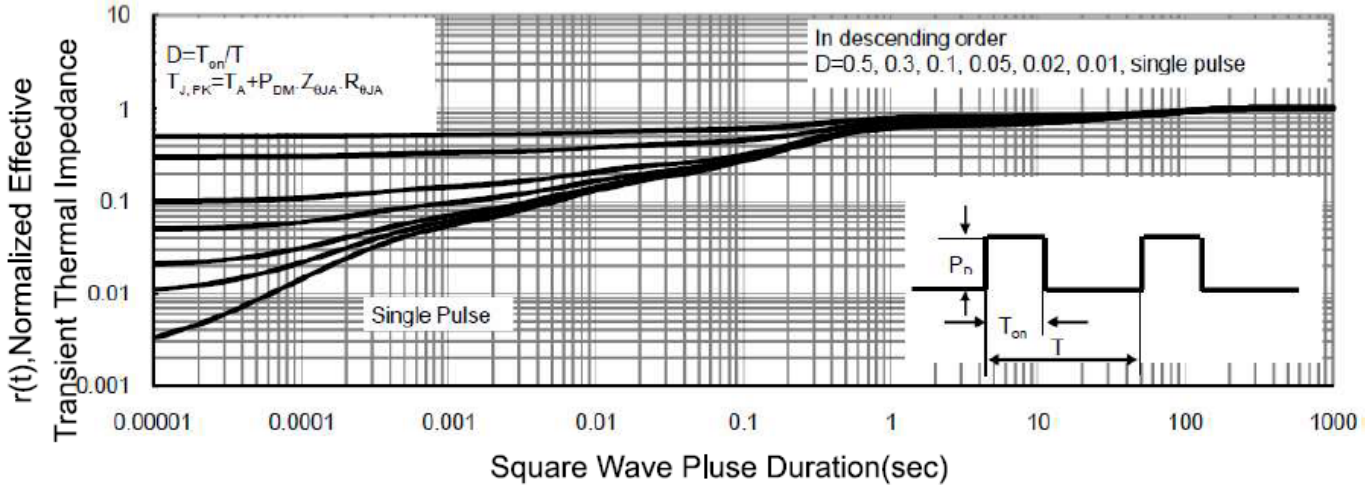


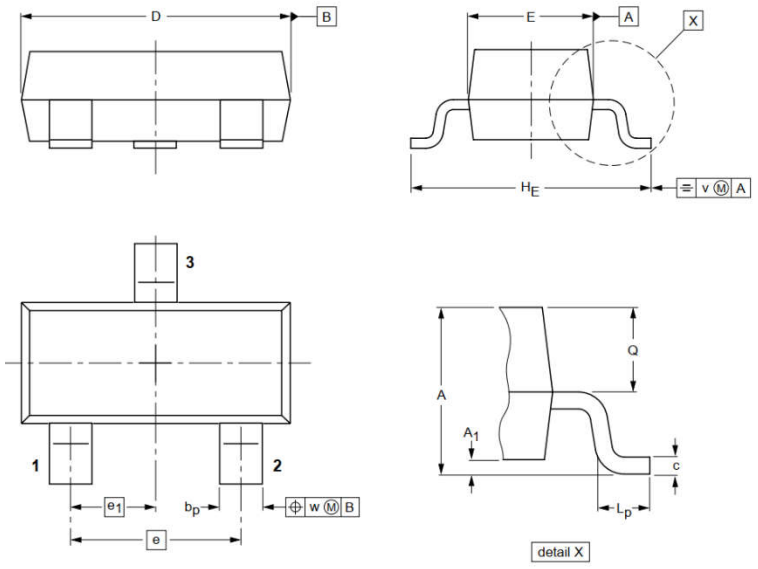
Figure 11 Normalized Maximum Transient Thermal Impedance

Ordering information

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

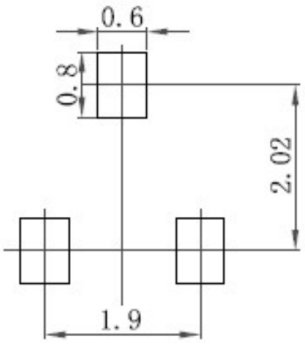
Package Dimensions

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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