-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-70A
V_{DSS}	-30V
R_{DSON}-typ(@V_{GS}=-10V)	< 9mΩ (Type:6.5 mΩ)
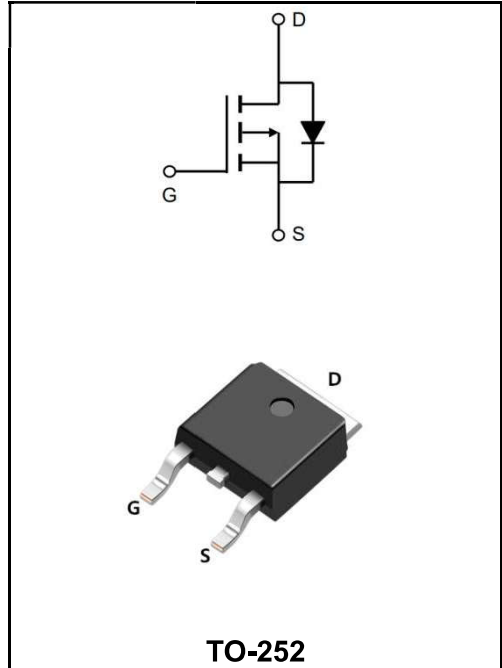
Application
♦Lithium battery protection
♦Wireless impact
♦Mobile phone fast charging

TO-252

Product Specification Classification

Part Number	Package	Marking	Pack
YFW70P03AD	TO-252	YFW 70P03AD XXXXX	2500PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate - Source Voltage	V_{GS}	$\pm$20	V
Continuous Drain Current, V_{GS} @ -10V[1] @T_A=25℃	I_D	70	A
Continuous Drain Current, V_{GS} @ -10V[1] @T_A=70℃	I_D	50	A
Pulsed Drain Current [note1]	I_{DM}	-220	A
Single Pulse Avalanche Energy[note2]	E_{AS}	121	mJ
Power Dissipation @T_A=25℃	P_D	65.2	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.9	°C/W
Operating and Storage Temperature Range	T_J ,T_{STG}	–55 to +175	°C

YFW70P03AD

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	**V(BR)DSS**	-30	33	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=-30V , V_{GS}=0V	**I$_{DSS}$**	-	-	-1	**µA**
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	**I$_{GSS}$**	-	-	±100	**nA**
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	**V$_{GS(th)}$**	-1.0	-1.6	-2.5	**V**
Static Drain-Source on-Resistance note3	V_{GS}=-10V, I_D=-30A	**R$_{DS(ON)}$**	-	6.5	9.0	**mΩ**
	V_{GS}=-4.5V, I_D=-20A		-	11.6	16	
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	**C$_{iss}$**	-	3564	-	**pF**
Output Capacitance		**C$_{oss}$**	-	416	-	
Reverse Transfer Capacitance		**C$_{rss}$**	-	373	-	
Total Gate Charge	V_{DS}=-15V V_{GS}=-10V I_D=-20A	**Q$_g$**	-	37	-	**nC**
Gate-Source Charge		**Q$_{gs}$**	-	6.5	-	
Gate-Drain("Miller") Charge		**Q$_{gd}$**	-	9.4	-	
Turn-on delay time	V_{DD}=-15V V_{GS}=-10V I_D=-30A R_{GEN}=2.5Ω	**t$_{d(on)}$**	-	16	-	**ns**
Turn-on Rise Time		**T$_r$**	-	21	-	
Turn-Off Delay Time		**t$_{d(OFF)}$**	-	68	-	
Turn-Off Fall Time		**t$_f$**	-	52	-	
Maximum Continuous Drain to Source Diode Forward Current		**I$_S$**	-	-	-55	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I$_{SM}$**	-	-	-220	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=-30A	**V$_{SD}$**	-	-0.8	-1.2	**V**

Note :

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 .The EAS data shows Max. rating .

3、The power dissipation is limited by 175℃ junction temperature

4、EAS condition: TJ=25℃, VDD= -15V, VG= -10V, RG=25Ω, L=0.5mH, IAS= -22A

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves
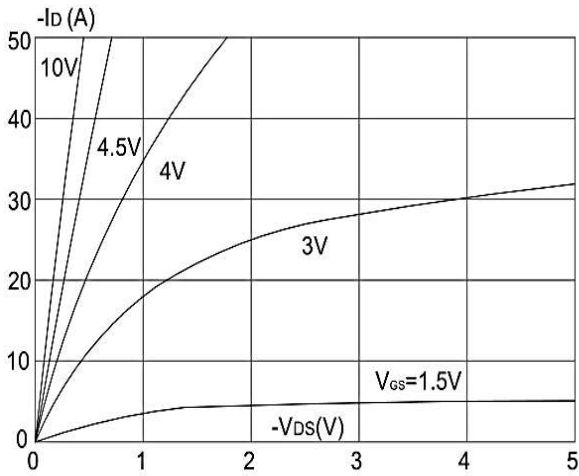
Typical Characteristics
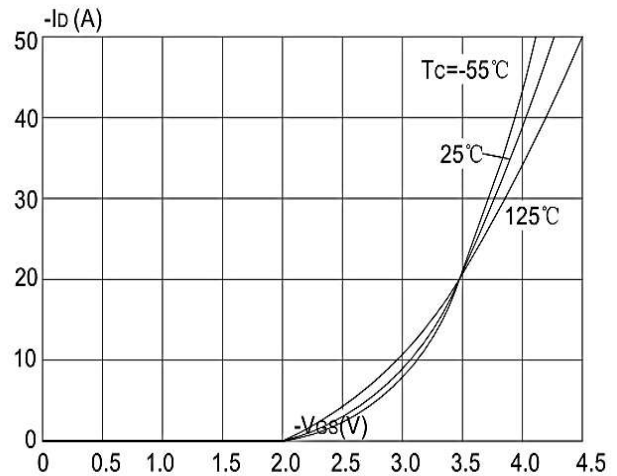

Figure1: Output Characteristics Figure
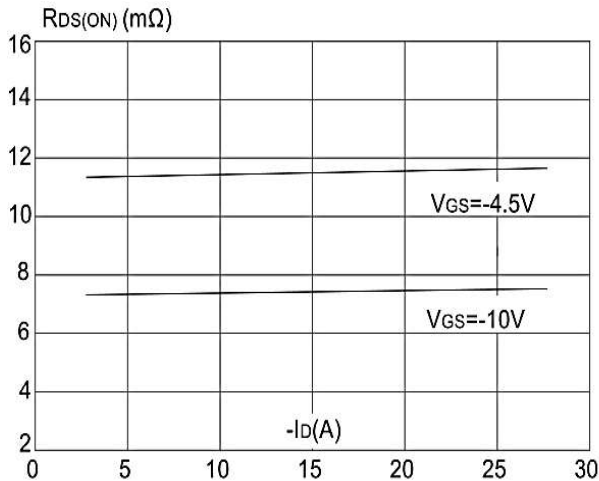

Figure2: Typical Transfer Characteristics
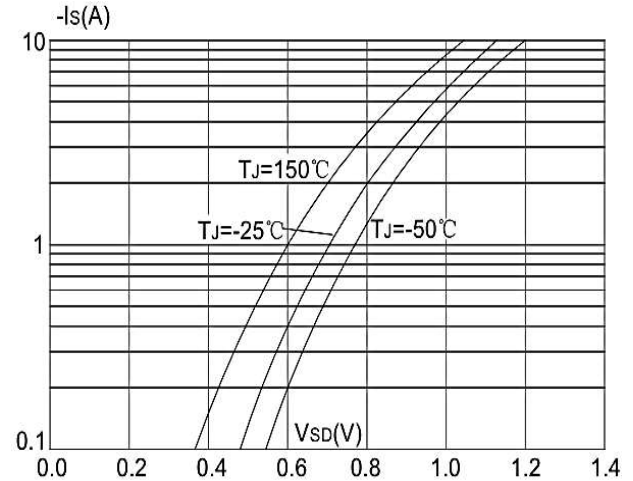

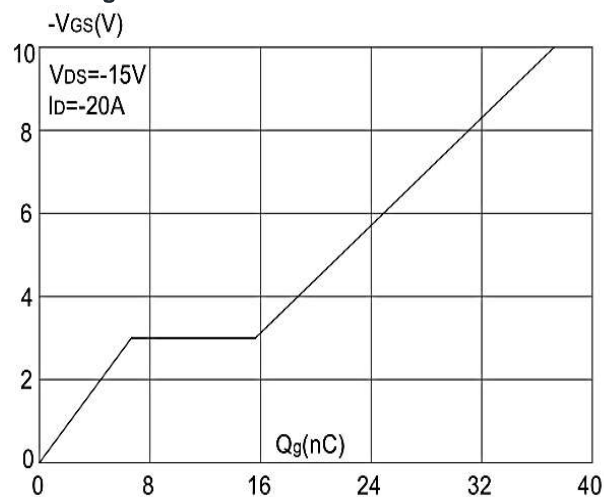Figure 3:On-resistance vs. Drain Current

Figure 4: Body Diode Characteristics
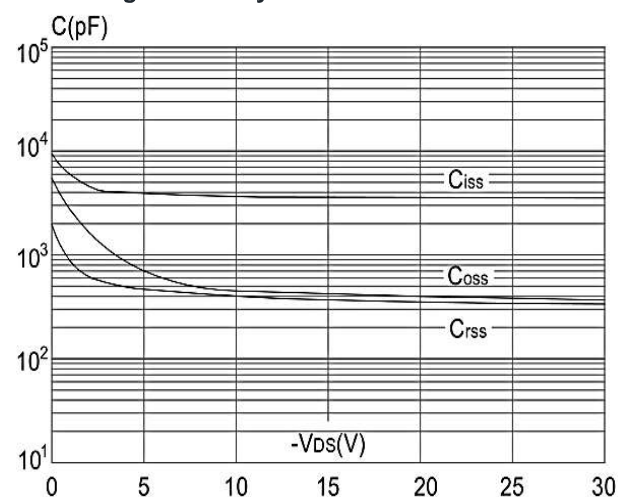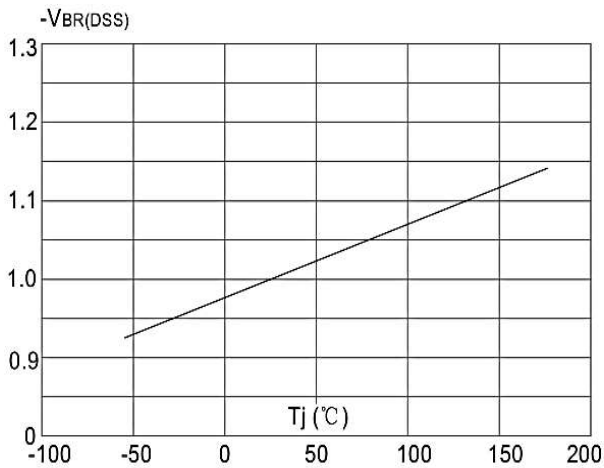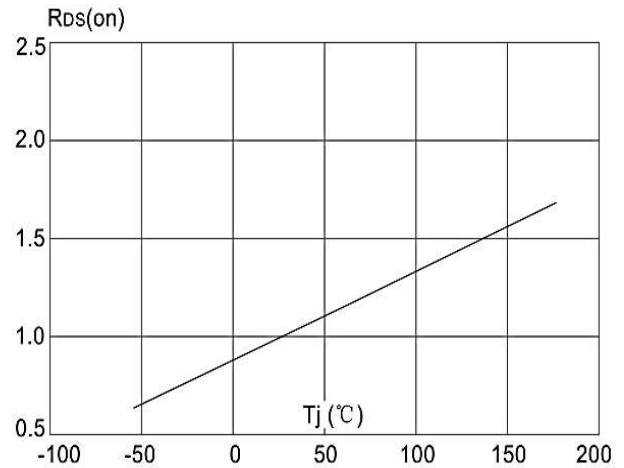

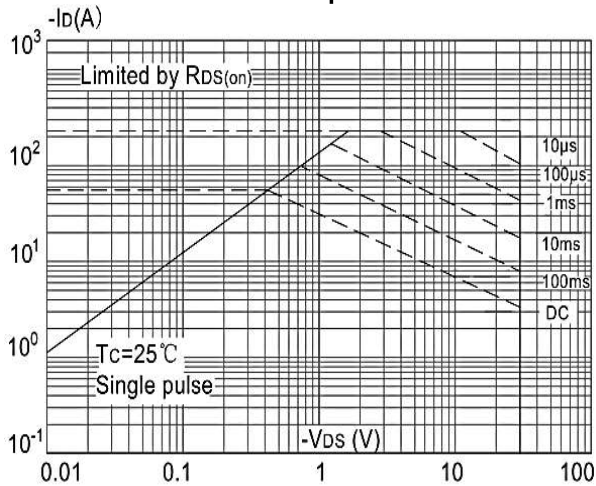Figure 5: Gate Charge Characteristics

Figure 6: Capacitance Characteristics
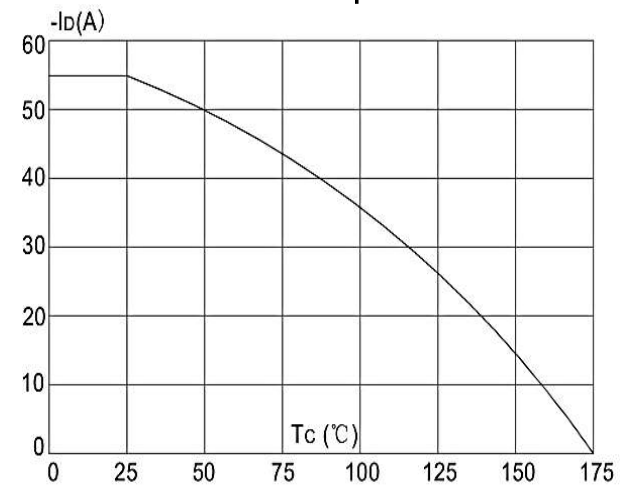
Ratings and Characteristic Curves

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature
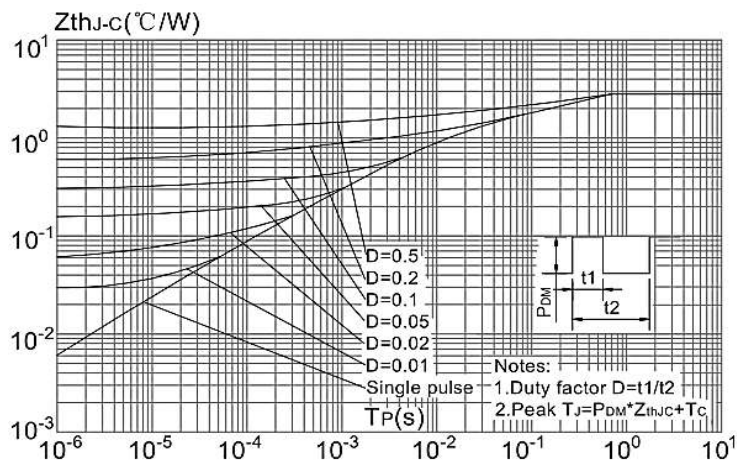

Figure 8: Normalized on Resistance vs. Junction Temperature

Figure 9: Maximum Safe Operating Area

Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Package Outline Dimensions Millimeters

TO-252

Dim.	Min.	Typ.	Max.
A	2.10	-	2.50
A2	0	-	0.10
B	0.66	-	0.86
B2	5.18	-	5.48
C	0.40	-	0.60
C2	0.44	-	0.58
D	5.90	-	6.30
D1	5.30REF		
E	6.40	-	6.80
E1	4.63	-	-
G	4.47	-	4.67
H	9.50	-	10.70
L	1.09	-	1.21
L2	1.35	-	1.65
V1	-	7°	-
V2	0°	-	6°

All Dimensions in millimeter