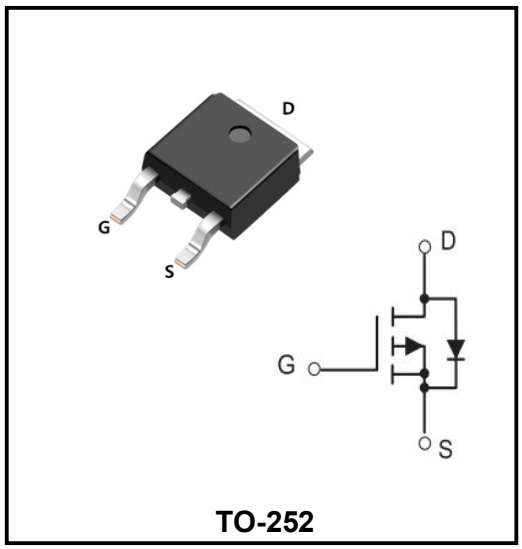
60V P-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	-50A
V_{DSS}	-60V
R_{DSON}-typ(@V_{GS}=10V)	＜30mΩ(Type:25 mΩ)



TO-252

FEATURES

Adopt advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

APPLICATIONS

- Battery protection
- Load switch
- Uninterruptible power supply

MECHANICAL DATA

- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275℃ maximum,10s per JESD 22-B106

Product Specification Classification

Part Number	Package	Marking	Pack
YFW50P06AD	TO-252	YFW 50P06AD XXXXX	2500PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continue Drain Current	I_D	-50	A
Pulsed Drain Current (Note1)	I_{DM}	-200	A
Single Pulsed Avalanche Energy	E_{AS}	195	mJ
Power Dissipation	P_D	95	W
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.3	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	100	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Electrical Characteristics at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = -250 μA	BV_{DSS}	-60	-	-	V
Drain-Source Leakage Current	V_{DS}=-60V,V_{GS}=0V	I_{DSS}	-	-	-1	μA
Gate Leakage Current	V_{GS}=±20V,V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = VGS , I_D = -250 μA	$V_{GS(th)}$	-1	-	-2.5	V
Drain-Source On-State Resistance	V_{GS} = -10 V, I_D = -20 A	$R_{DS(on)}$	-	25	30	mΩ
Input Capacitance	V_{DS}=-25V , V_{GS}=0V , f=1.0MHz	C_{iss}	-	4500	-	pF
Output Capacitance		C_{oss}	-	700	-	pF
Reverse Transfer Capacitance		C_{rss}	-	513	-	pF
Turn-on Delay Time(Note2)	V_{DS}=-30V , V_{GS}=-10V ,R_G=3Ω, R_L=1.5 Ω	$t_{d(ON)}$	-	15	-	ns
Rise Time(Note2)		t_r	-	17	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	40	-	ns
Fall Time(Note2)		t_f	-	42	-	ns
Total Gate Charge(Note2)	V_{DS}=-30V , V_{GS}=-10V , I_D=-20A	Q_G	-	73	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	15	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	18	-	nC

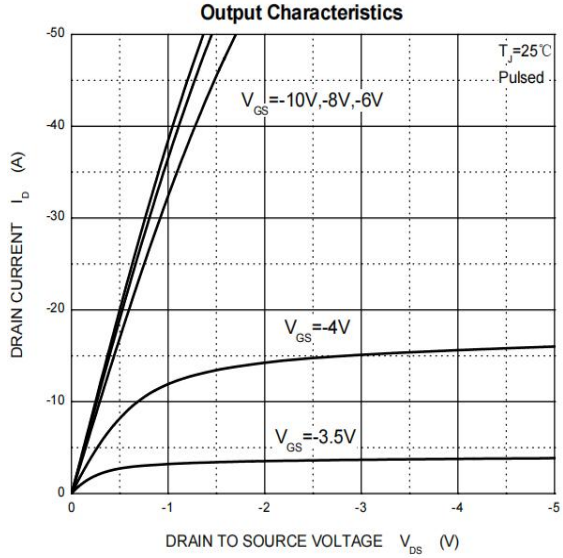
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	-50	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	-200	A
Drain-Source Diode Forward Voltage	V_{GS}=0V , I_S=-20A , T_J=25	V_{SD}	-	-	-1.2	V

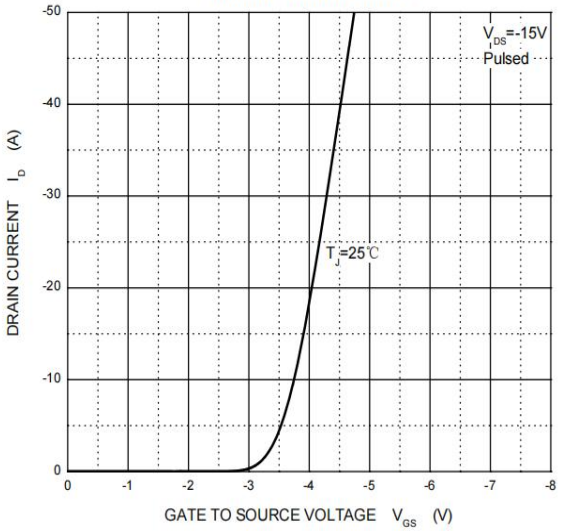
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

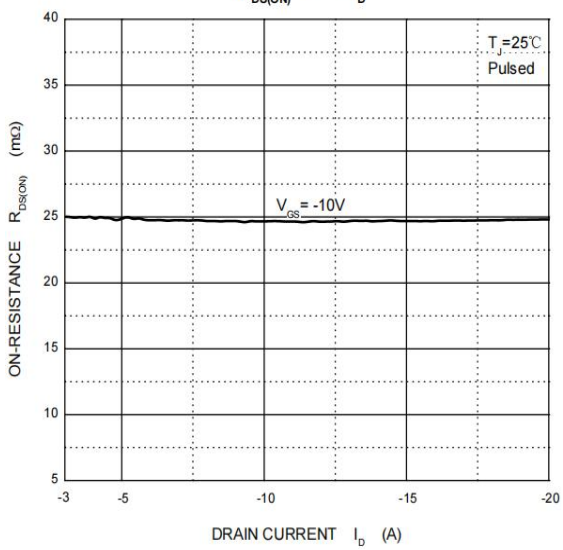
Output Characteristics



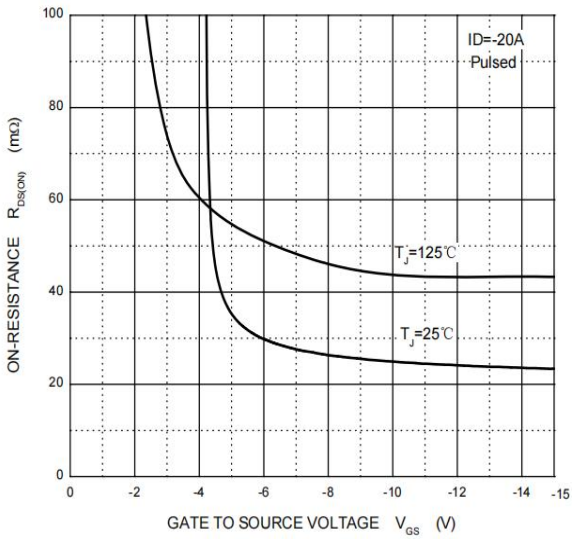
Transfer Characteristics



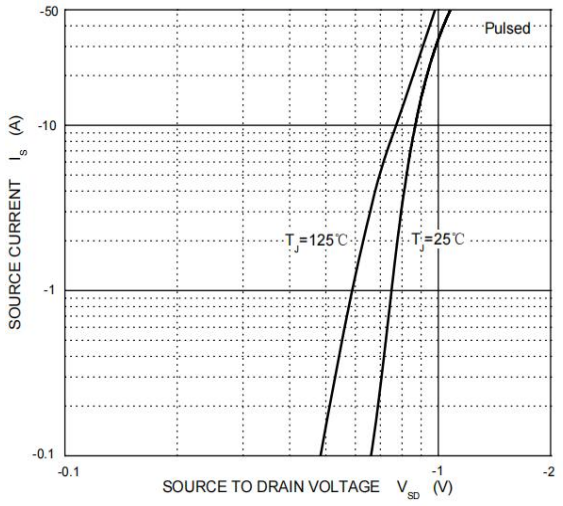
$R_{DS(ON)}$ —— I_D



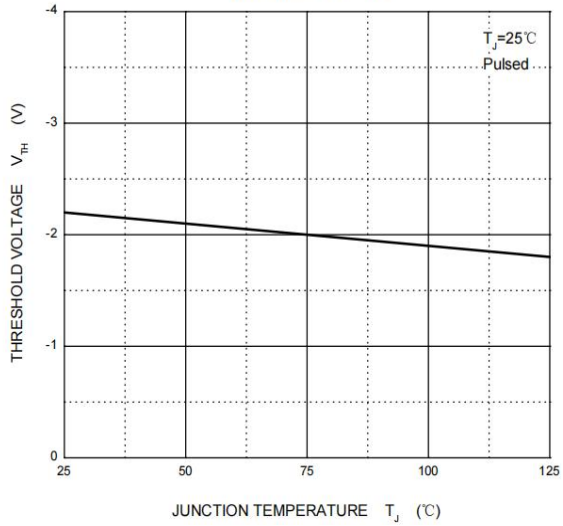
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage



Package Outline Dimensions Millimeters

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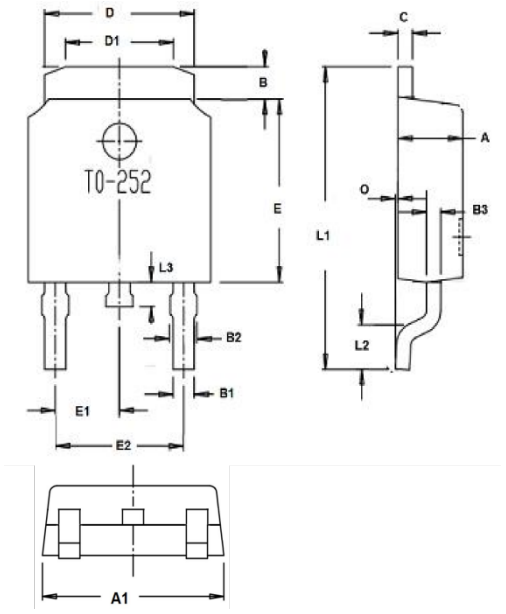

Dim.	Min.	Max.
A	2.1	2.5
A1	6.3	6.9
B	0.95	1.55
B1	0.6	0.8
B2	0.75	0.95
C	Typ0.5	
D	5.3	5.5
D1	3.65	4.05
E	5.8	6.4
E1	Typ2.3	
E2	Typ4.6	
O	0	0.15
L1	9	11
L2	Typ1.5	
L3	0.7	1
All Dimensions in millimeter		