

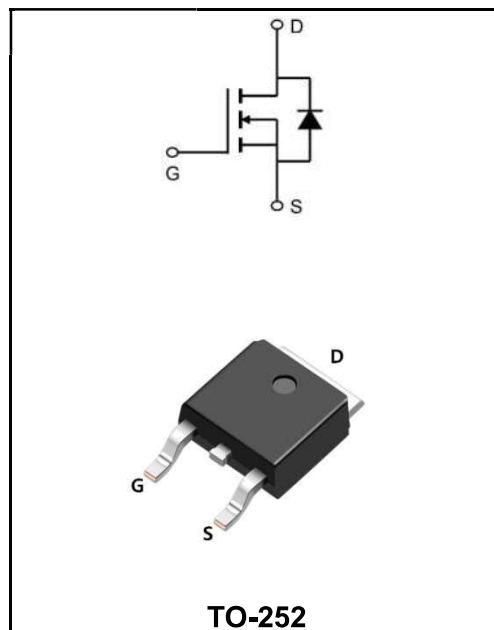
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	19.3A
V_{DSS}	100V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 85mΩ (Type: 65 mΩ)

Application

- ◆ Lithium battery protection
- ◆ Wireless impact
- ◆ Mobile phone fast charging



Product Specification Classification

Part Number	Package	Marking	Pack
YFW15N10AD	TO-252	YFW 15N10AD XXXXX	2500PCS/Tape

Maximum Ratings at $T_c=25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	± 20	V
Drain Current, V_{GS} @ 10V @ $T_c=25^\circ\text{C}$	I_D	19.3	A
Drain Current, V_{GS} @ 10V @ $T_c=100^\circ\text{C}$	I_D	10	A
Pulsed Drain Current ¹	I_{DM}	57.9	A
Total Power Dissipation @ $T_c=25^\circ\text{C}$	P_D	30	W
Total Power Dissipation ³ @ $T_A=25^\circ\text{C}$	P_D	2.7	W
Single Pulse Avalanche Energy ⁴	E_{AS}	7	mJ
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Maximum Thermal Resistance, Junction ambient	$R_{\theta JA}$	55	$^\circ\text{C/W}$
Maximum Thermal Resistance, Junction-case	$R_{\theta JC}$	5.1	$^\circ\text{C/W}$

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	100	107	-	V
Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	1.2	1.85	2.5	V
Static Drain-Source on-Resistance note3	$V_{GS}=10V, I_D=5A$	R_{DS(ON)}	-	65	85	mΩ
	$V_{GS}=4.5V, I_D=3A$		-	75	100	
Forward Transconductance	$V_{DS}=5V, I_D=5A$	g_{FS}	-	14	-	S
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	R_g	-	3	-	Ω
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	1100	-	pF
Output Capacitance		C_{oss}	-	55	-	
Reverse Transfer Capacitance		C_{rss}	-	40	-	
Total Gate Charge	$V_{DS}=50V$ $V_{GS}=10V$ $I_D=5A$	Q_g	-	11.9	-	nC
Gate-Source Charge		Q_{gs}	-	2.8	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	1.7	-	
Turn-on delay time	$V_{DS}=30V$ $I_D=5A$ $R_G=1.8\Omega$ $V_{GS}=10V$	t_{d(on)}	-	3.8	-	ns
Turn-on Rise Time		T_r	-	25.8	-	
Turn-Off Delay Time		t_{d(OFF)}	-	16	-	
Turn-Off Fall Time		t_f	-	8.8	-	
Continuous Source Current1,5	$V_G=V_D=0V$, Force Current	I_S	-	-	14.6	A
Pulsed Source Current2,5		I_{SM}	-	-	25	A
Diode Forward Voltage 2	$V_{GS}=0V, I_S=10A$	V_{SD}	-	-	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 $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、The EAS data shows Max. rating . The test condition is $V_{DD}=80V, V_{GS}=10V, L=0.1mH, I_{AS}=7A$
- 4、The power dissipation is limited by 150°C junction temperature
- 5、The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation

Ratings and Characteristic Curves

Typical Characteristics

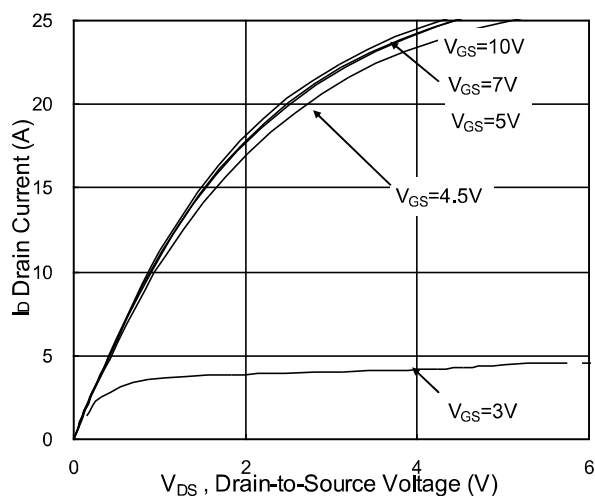


Fig.1 Typical Output Characteristics

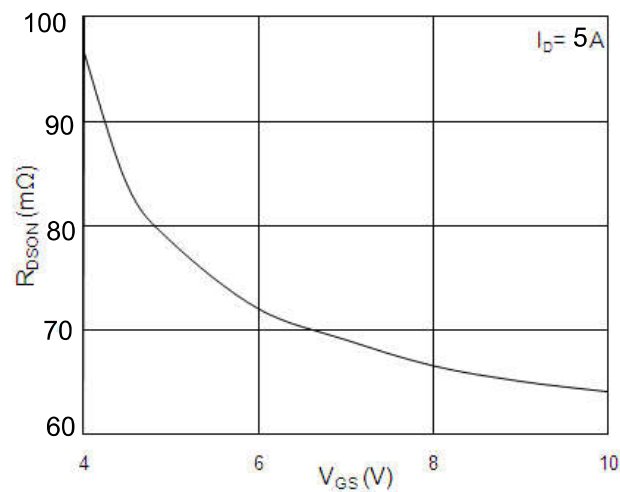


Fig.2 On-Resistance vs. Gate-Source

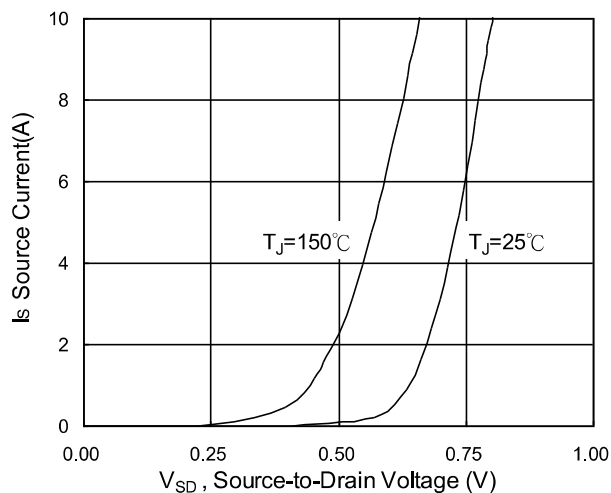


Fig.3 Forward Characteristics Of Reverse

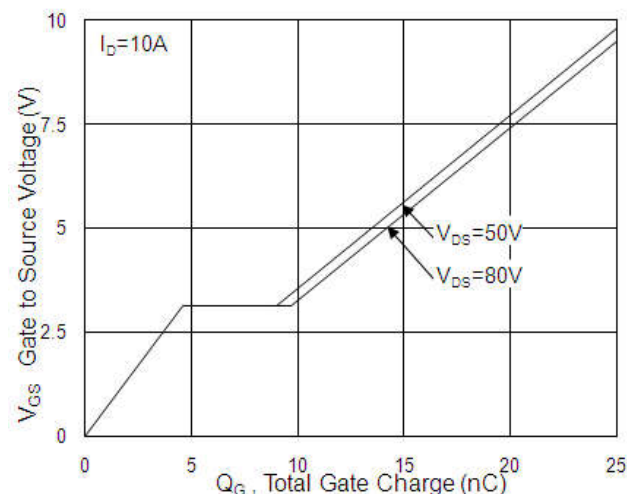


Fig.4 Gate-Charge Characteristics

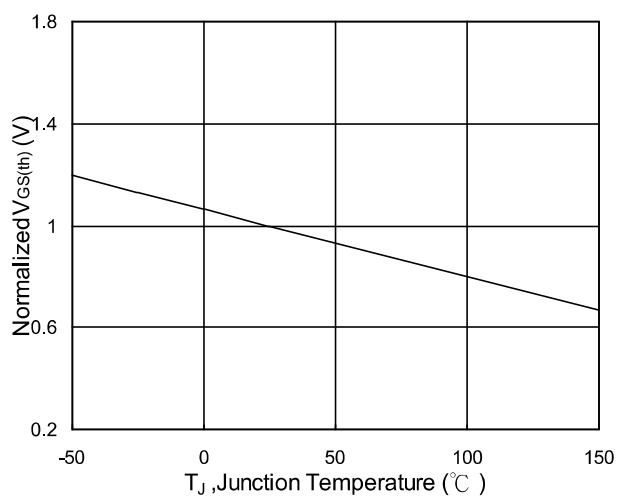


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

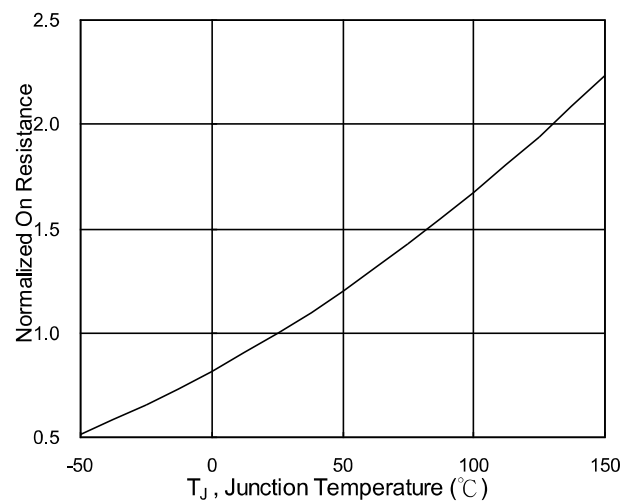
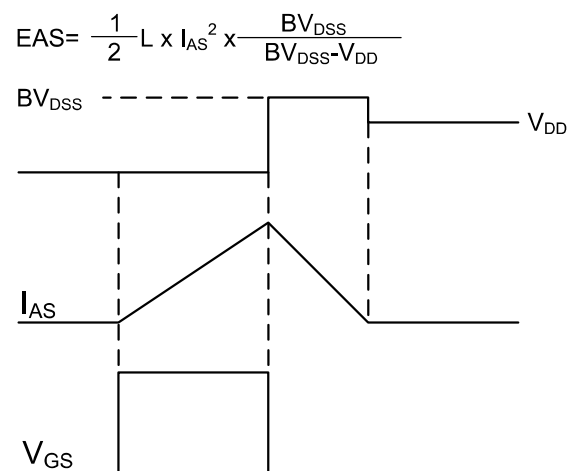
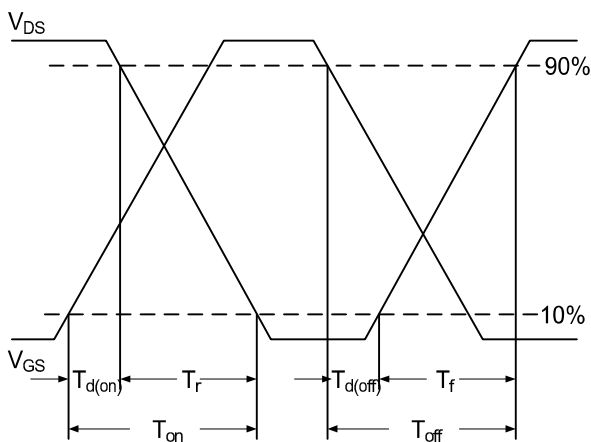
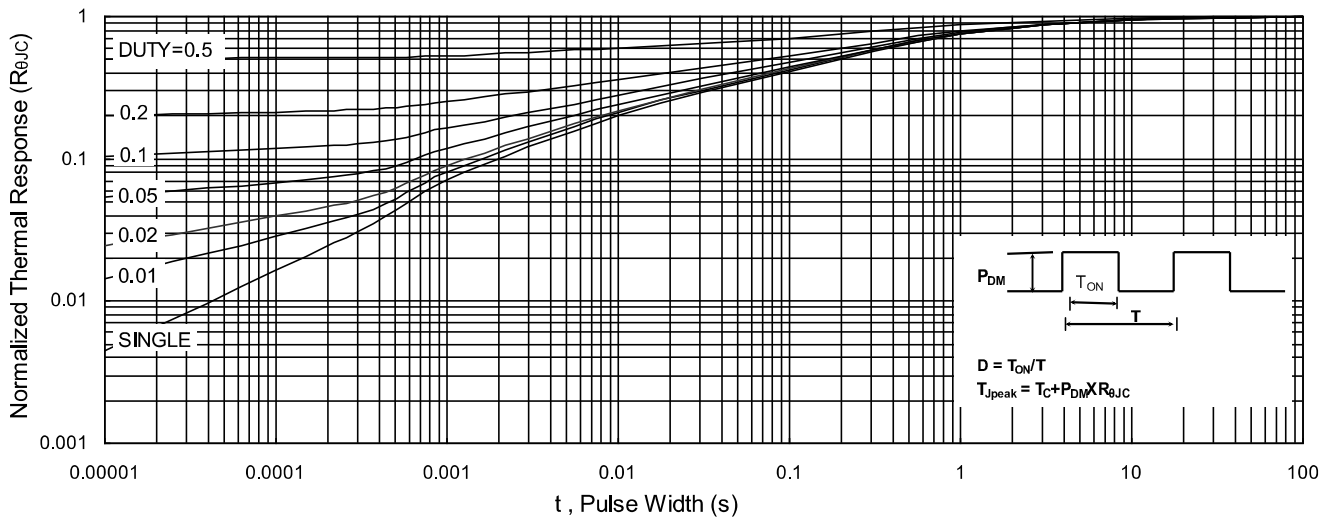
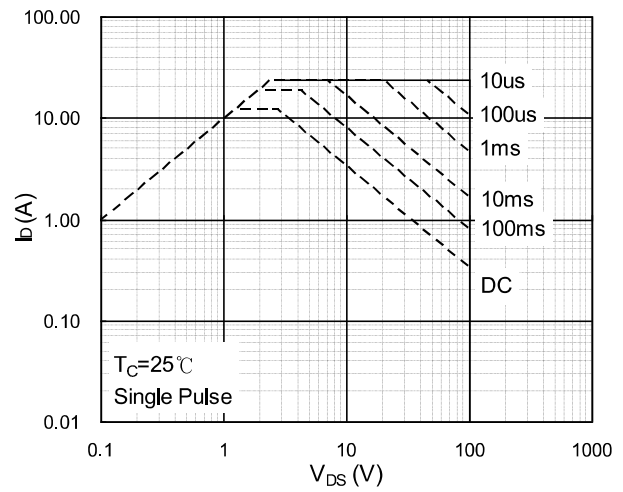
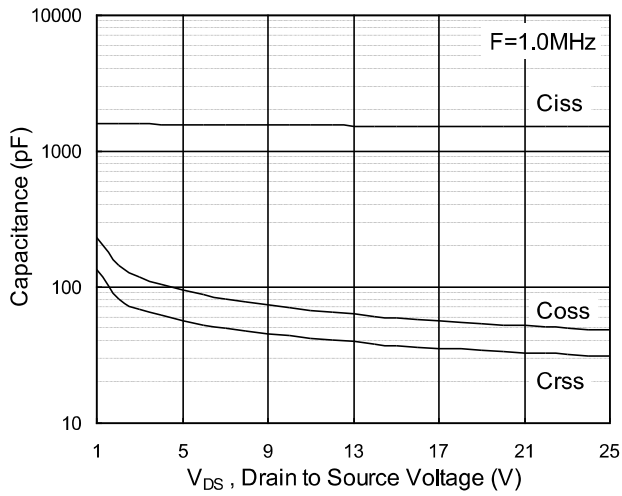


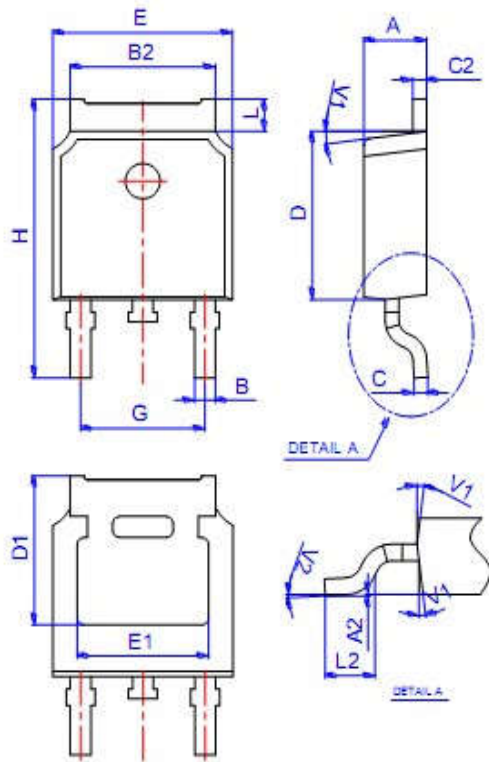
Fig.6 Normalized $R_{DS(on)}$ vs. T_J

Ratings and Characteristic Curves



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