

60V N- CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

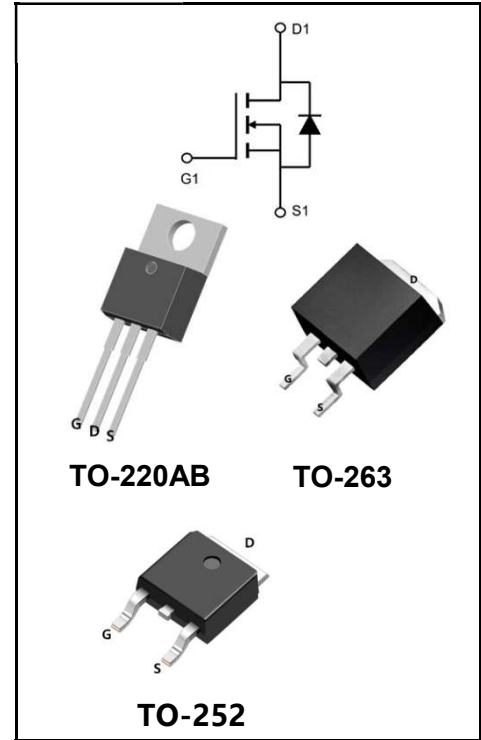
I_D		80A
V_{DSS}		60V
$R_{DS(ON)-typ}$ (@ $V_{GS}=10V$)	TO-252	<7.9 m Ω (Type:5.8 m Ω)
	TO-263	<7.9 m Ω (Type:6.0 m Ω)
	TO-220AB	<7.9 m Ω (Type:6.2 m Ω)

Features

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

Application

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply



Mechanical Data

- ◆ Case: Molded plastic
- ◆ Mounting Position: Any
- ◆ Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆ Solder bath temperature 275°C maximum, 10s per JESD22-106

Product Specification Classification

Part Number	Part Number	Marking	Pack
YFW80N06AT	TO-220AB	YFW 80N06AT XXXXX	50PCS/Tube
YFW80N06AS	TO-263	YFW 80N06AS XXXXX	50PCS/Tube
YFW80N06AS-R	TO-263	YFW 80N06AS XXXXX	800PCS/Tape
YFW80N06AD	TO-252	YFW 80N06AD XXXXX	2500PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
		252/263/220AB	
Drain-Source Voltage	VDS	60	V
Gate-Source Voltage	VGS	±20	V
Continue Drain Current	ID	80	A
Pulsed Drain Current (Note1)	IDM	320	A
Power Dissipation	PD	110	W
Single Pulse Avalanche Energy (Note1)	EAS	140	mJ
Operating Temperature Range	TJ	150	°C
Storage Temperature Range	TSTG	-55 to +175	°C
Thermal Resistance, Junction to Case	RθJC	2.1	°C/W
Thermal Resistance, Junction to Ambient	RθJA	62	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

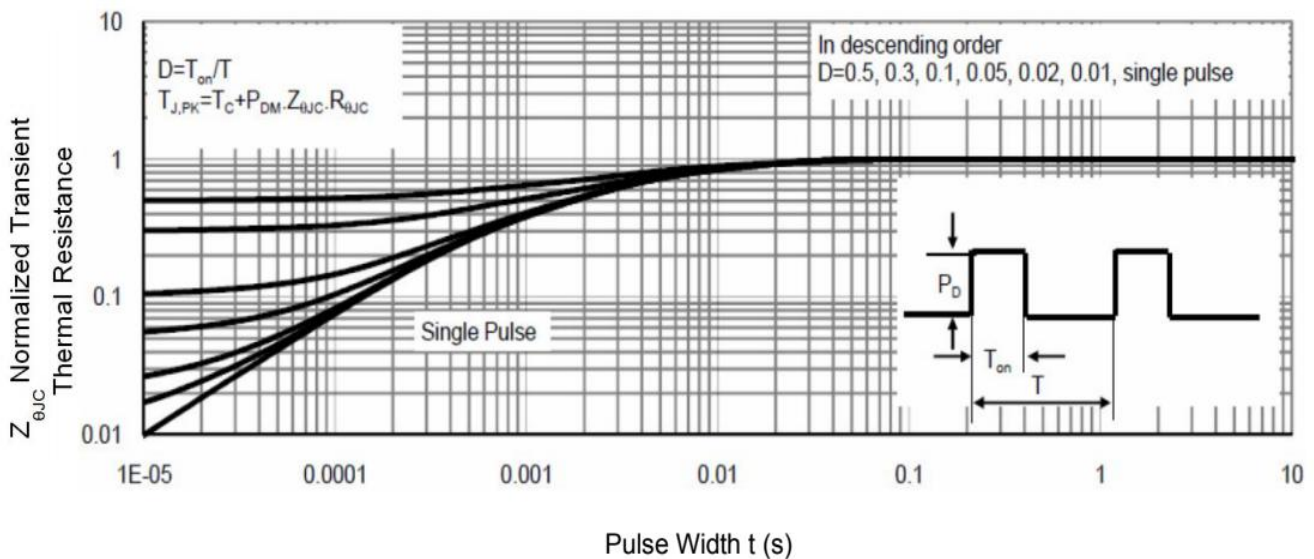
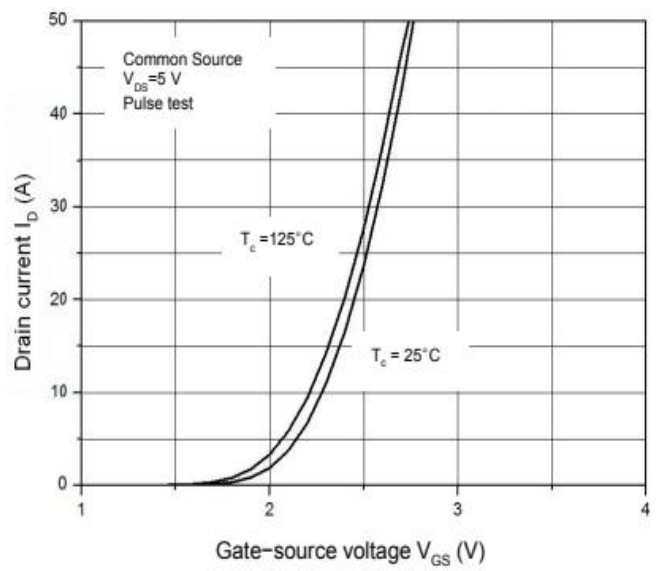
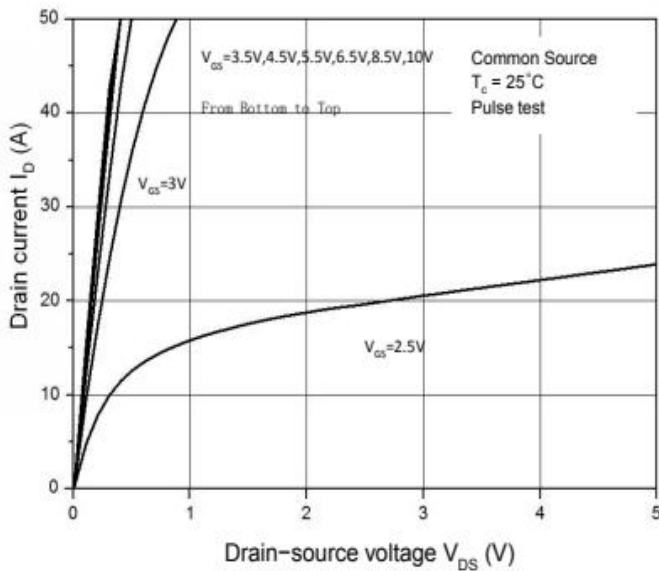
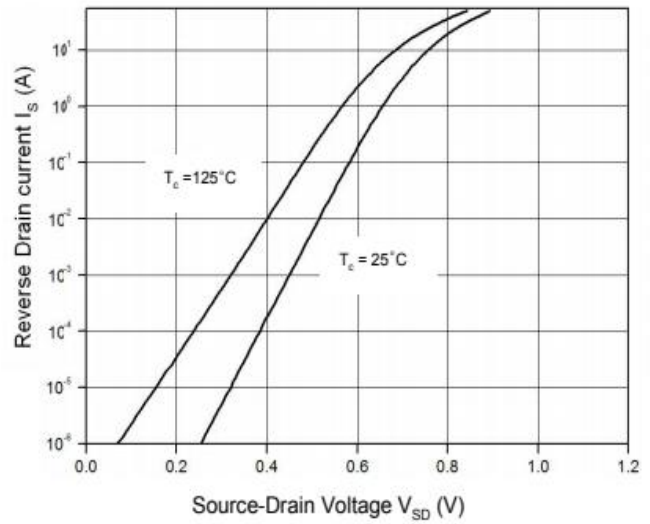
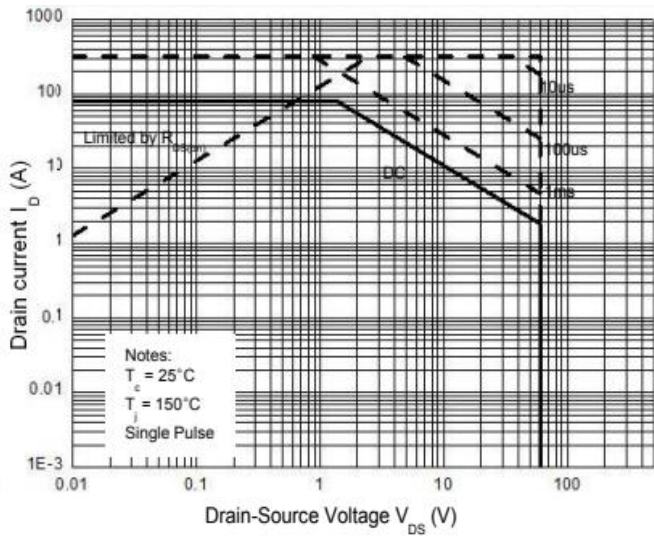
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current	$V_{DS} = 60V, V_{GS} = 0 V$	I_{DSS}	-	-	1	UA
Gate Leakage Current	$V_{GS} = \pm 20 V, V_{DS} = 0 V$	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	V_{GS(th)}	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10 V, I_D = 30A$	TO-252	-	5.8	7.9	mΩ
		TO-263	-	6.0	7.9	
		TO-220AB	-	6.2	7.9	
Forward Transconductance	$V_{DS} = 5 V, I_D = 10 A$	g_{fs}	10	-	-	S
Input Capacitance	$V_{GS} = 15 V, V_{DS} = 0 V, f = 1MHz$	C_{iss}	-	3750	-	pF
Output Capacitance		C_{oss}	-	269	-	
Reverse Transfer Capacitance		C_{rss}	-	255	-	
Turn-on Delay Time(Note2)	$I_D = 30A, V_{DD} = 30 V, R_G = 2\Omega, V_{GS} = 10V$	t_{d(ON)}	-	18	-	nS
Rise Time(Note2)		tr	-	170	-	
Turn-Off Delay Time(Note2)		t_{d(OFF)}	-	464	-	
Fall Time(Note2)		t_f	-	140	-	
Total Gate Charge(Note2)	$I_D = 30 A, V_{DS} = 30 V, V_{GS} = 10 V$	Q_G	-	12	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	13	-	
Gate to Drain Charge(Note2)		Q_{GD}	-	68	-	

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	-	-	80	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	320	A
Drain-Source Diode Forward Voltage	$V_{GS} = 0 V, I_S = 1 A, T_J = 25^\circ C$	V_{SD}	-	-	1.2	V

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

Ratings and Characteristic Curves



Package Outline Dimensions Millimeters

TO-220AB

Dim.	Min.	Max.
A	10.15	10.35
B	2.65	2.95
C	3.70	3.90
D	28.5	29.5
E	1.30	1.45
F	6.35	6.55
G	2.9	3.3
H	15.0	16.0
I	0.38	0.42
J	4.45	4.55
K	1.25	1.35
L	Typ 5.08	
M	Typ 2.54	
N	3.1	3.3
O	0.76	0.84
All Dimensions in millimeter		

TO-263

Dim.	Min.	Max.
A	10.1	10.2
B	7.4	7.6
C	1.3	1.5
D	0.55	0.75
E	5.0	6.0
F	1.4	1.6
G	0.78	0.86
H	1.2	1.3
I	Typ 2.54	
J	8.4	8.6
K	4.45	4.55
L	1.25	1.35
M	0.02	0.1
N	2.4	2.8
O	0.36	0.40
All Dimensions in millimeter		

Package Outline Dimensions Millimeters

TO-252

	Dim.	Min.	Max.
	A	2.1	2.5
	B	0.95	1.55
	C	0.4	0.6
	D	6.4	6.7
	D1	5.1	5.8
	E	5.8	6.4
	E1	Typ 2.3	
	E2	Typ 4.6	
	B1	0.6	0.8
	B2	0.75	0.95
	O	--	0.15
	L1	9.0	11.0
	L2	1.3	1.7
L3	0.70	0.95	
All Dimensions in millimeter			