

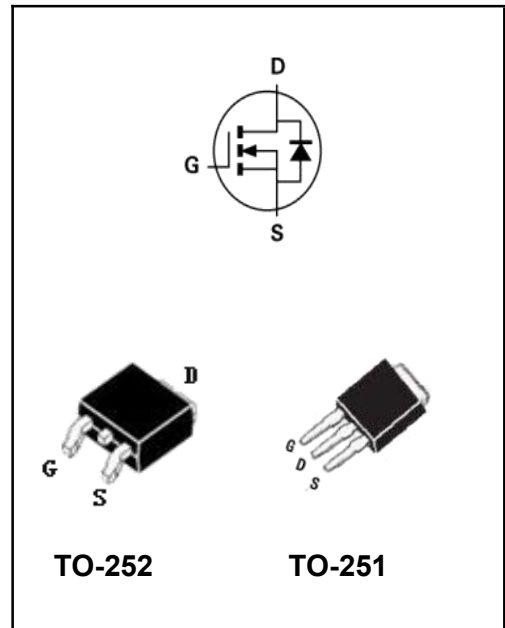
**40V N-Channel Enhancement Mode MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	80A
<b>V<sub>DSS</sub></b>	40V
<b>R<sub>DS(ON)-typ(@V<sub>GS</sub>=10V)</sub></b>	<7mΩ (Type:5.5mΩ)

**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°C maximum, 10s per JESD 22-B106

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW80N04AD	TO-252	YFW 80N04AD XXXXX	2500PCS/Tape
YFW80N04AMJ	TO-251	YFW 80N04AMJ XXXXX	4000PCS/box

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	40	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continue Drain Current	$I_D$	80	A
Pulsed Drain Current (Note1)	$I_{DM}$	350	A
Power Dissipation	$P_D$	80	W
Single Pulse Avalanche Energy (Note1)	$E_{AS}$	750	mJ
Operating Temperature Range	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.88	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W

Note1:Pulse test: 300  $\mu$ s pulse width, 2 % duty cycle

**Electrical Characteristics at Tc=25°C unless otherwise specified**

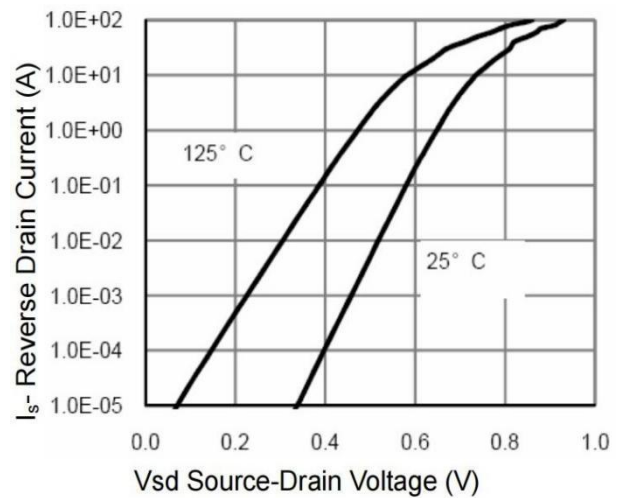
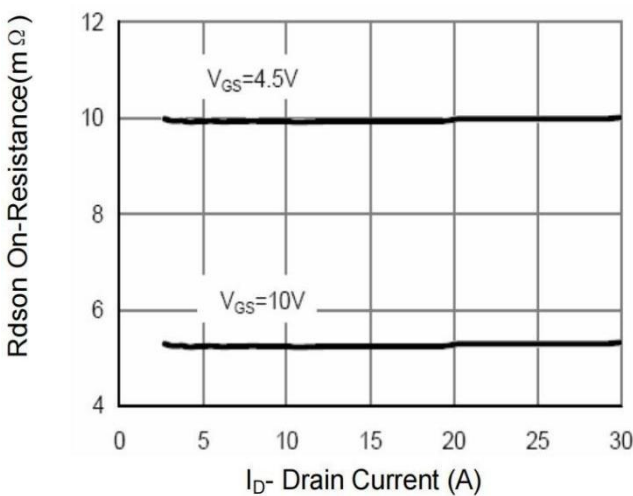
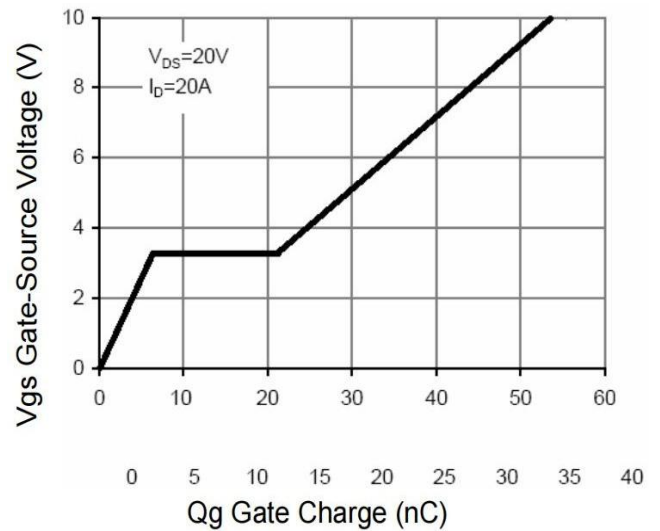
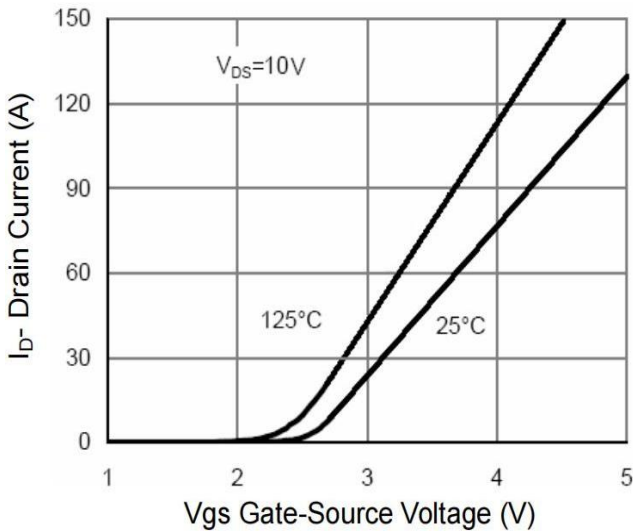
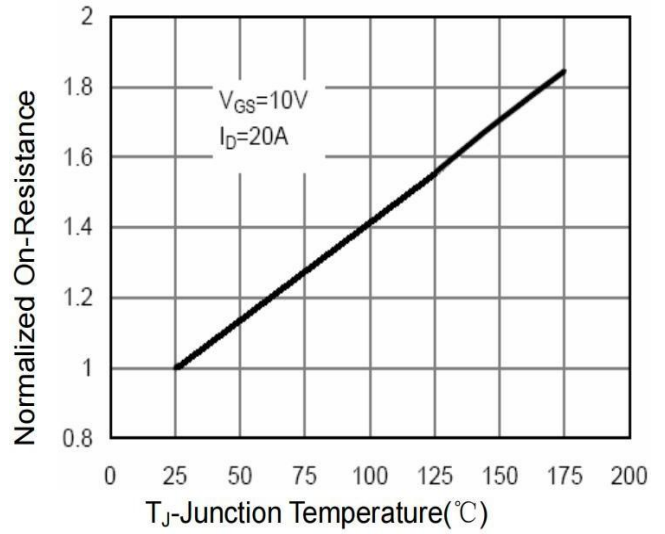
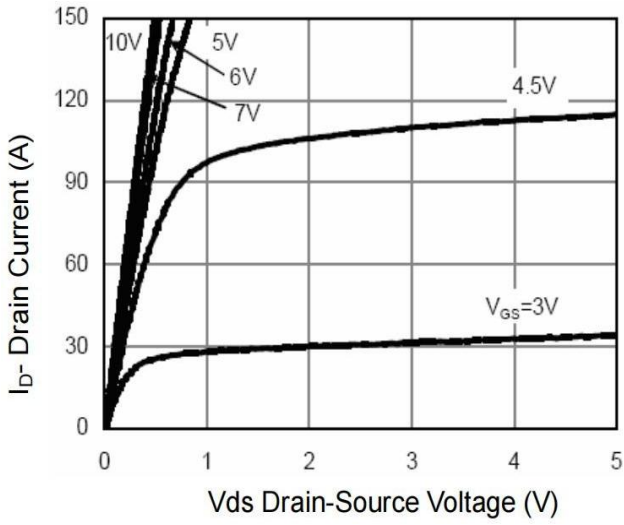
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	$BV_{DSS}$	40	-	-	V
Drain-Source Leakage Current	$V_{DS} = 40 V, V_{GS} = 0 V$	$I_{DSS}$	-	-	1	$\mu A$
Gate Leakage Current	$V_{GS} = \pm 20 V, V_{DS} = 0 V$	$I_{GSS}$	-	-	$\pm 100$	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	1.1	-	2.4	V
Drain-Source On-State Resistance	$V_{GS} = 10 V, I_D = 30 A$	$R_{DS(on)}$	-	5.5	7	m $\Omega$
	$V_{GS} = 4.5 V, I_D = 20 A$	$R_{DS(on)}$	-	8	12	m $\Omega$
Forward Transconductance	$V_{DS} = 10 V, I_D = 20 A$	gfs	15	-	-	S
Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1MHz$	$C_{iss}$	-	2662	3200	pF
Output Capacitance		$C_{oss}$	-	322	-	pF
Reverse Transfer Capacitance		$C_{rss}$	-	246	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=20V, V_{GS}=10V, RG=3 \Omega, RL=1 \Omega$	$t_{d(ON)}$	-	12	-	ns
Rise Time(Note2)		$t_r$	-	11	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	39	-	ns
Fall Time(Note2)		$t_f$	-	12	-	ns
Total Gate Charge(Note2)	$V_{DS}=20V, V_{GS}=10V, I_D=20A$	$Q_G$	-	54.3	-	nC
Gate to Source Charge(Note2)		$Q_{GS}$	-	6.9	-	nC
Gate to Drain Charge(Note2)		$Q_{GD}$	-	14.5	-	nC

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

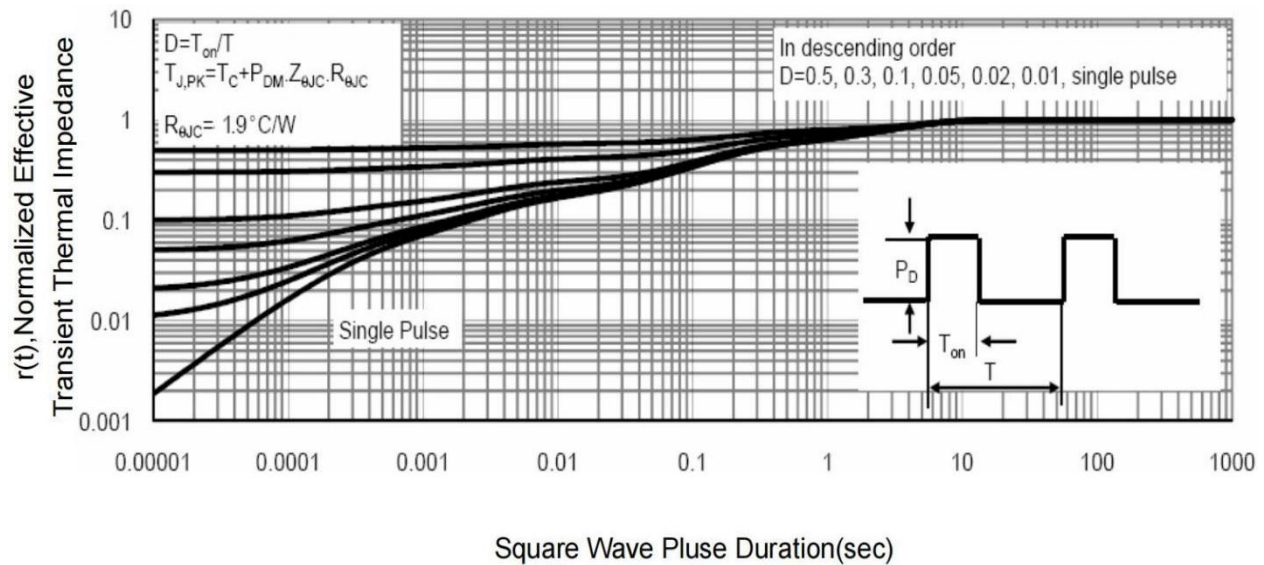
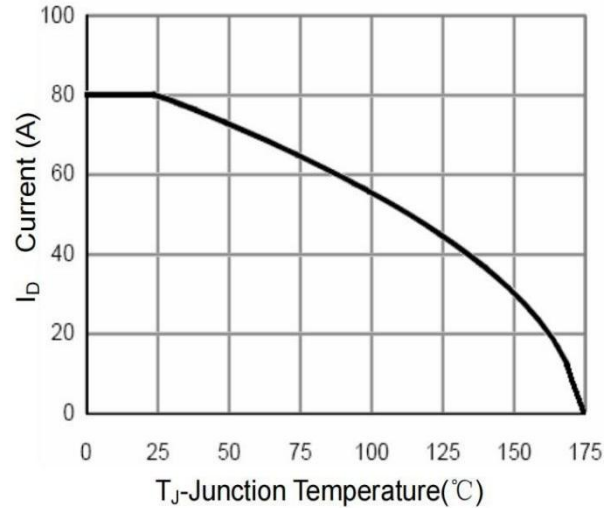
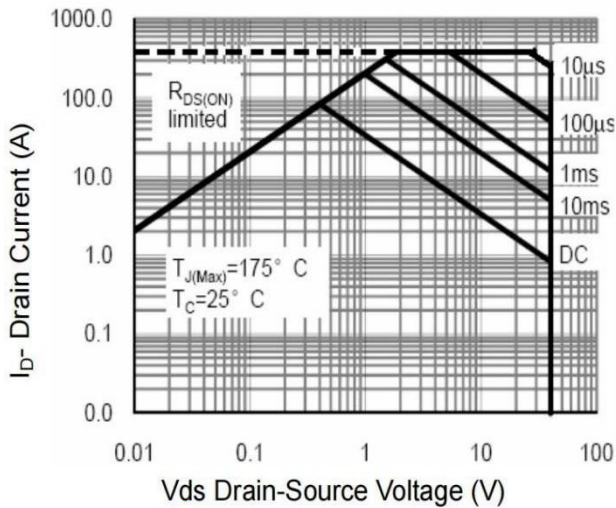
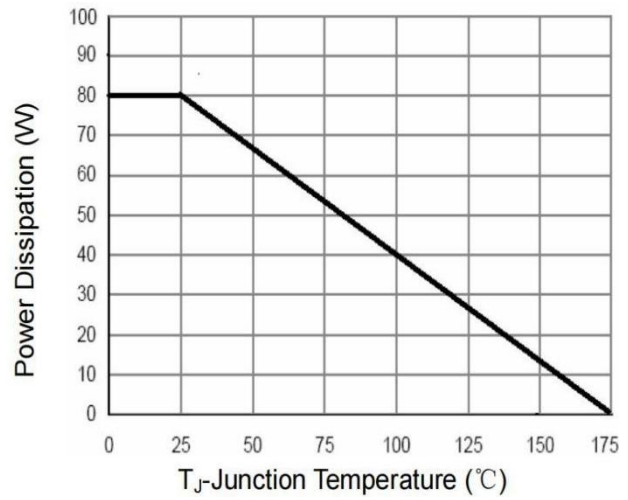
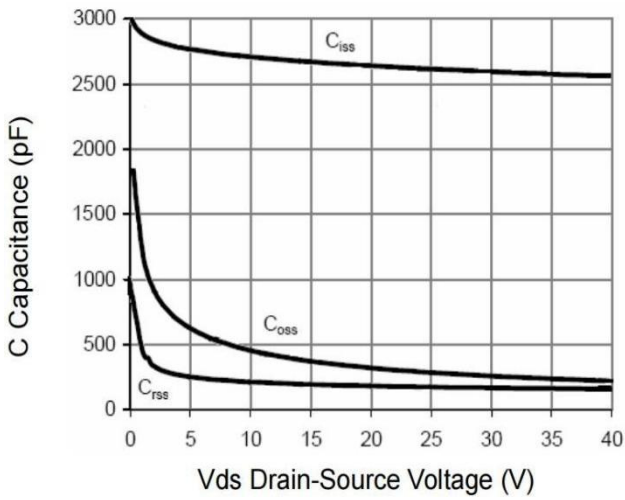
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		$I_S$	-	-	80	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=10A, T_J=25$	$V_{SD}$	-	-	1.2	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ C, I_F = 20A$ $di / dt = 100 A/\mu s$	trr	-	-	45	ns
Reverse Recovery Charge(Note2)		Qrr	-	-	50	nC

Note2:Pulse test: 300  $\mu$ s pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

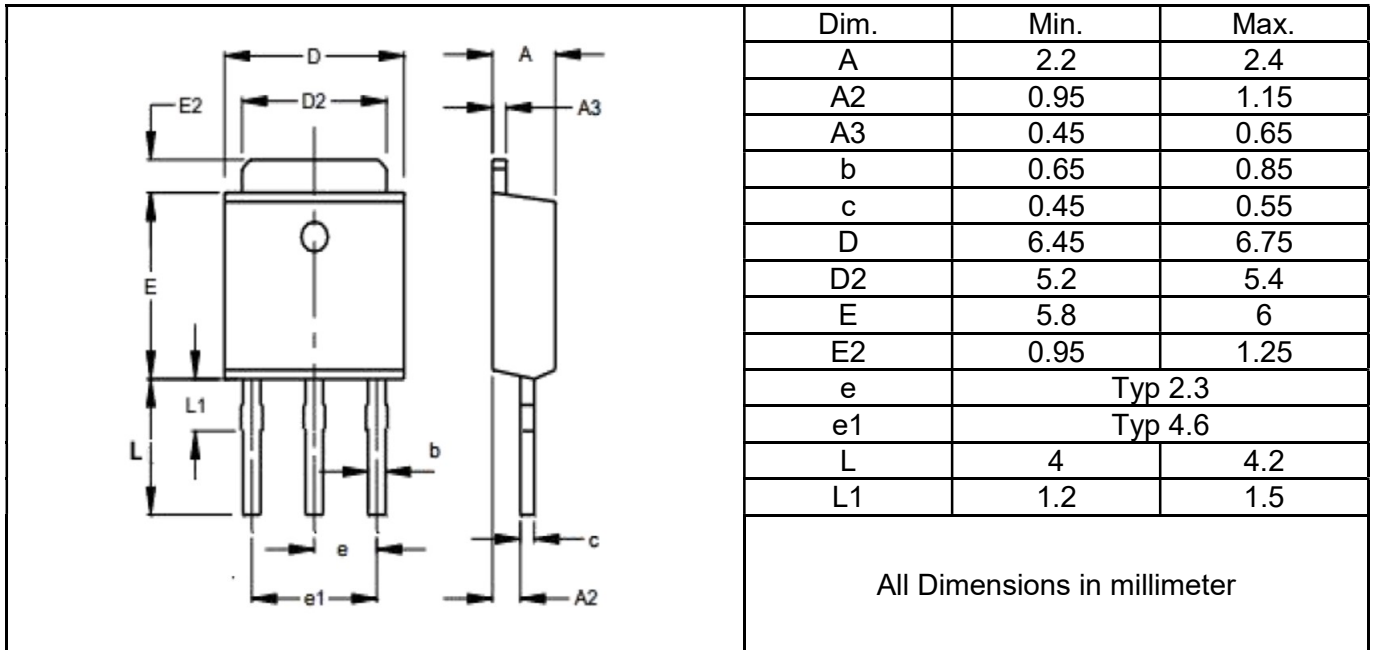


RATINGS AND CHARACTERISTIC CURVES



Package Outline Dimensions millimeters

TO-251



TO-252

