

30V N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	100A
V_{DS}	30V
R_{DS(on)-typ} (@V _{GS} =10V T _C =25°C)	<4mΩ(Typ:3.4mΩ)

FEATURES

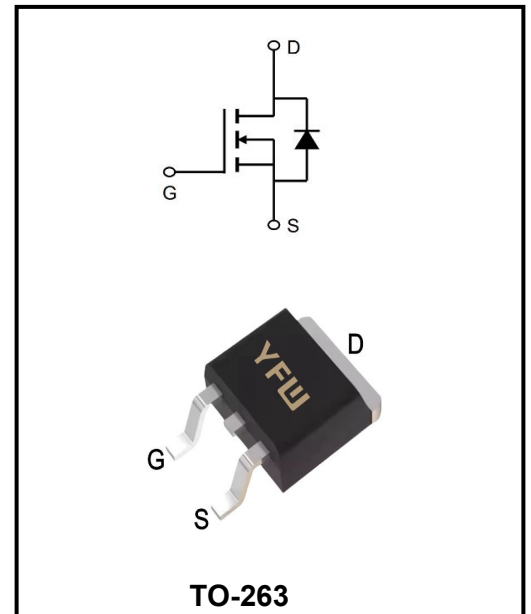
Adopt advanced trench technology to provide excellent R_{DS(ON)}, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

APPLICATIONS

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

MECHANICAL DATA

- ◆ Case: TO-263/AS
- ◆ 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



Maximum Ratings at T_C=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V _{DS}	30	V
Gate - Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	100	A
Pulsed Drain Current(note1)	I _{DM}	300	A
Power Dissipation	P _D	85	W
Single Pulse Avalanche Energy(note2)	E _{AS}	52	mJ
Operating Temperature Range	T _J	150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
Thermal Resistance, Junction-to-case	R _{θJC}	2.1	°C/W
Thermal Resistance, Junction ambient	R _{θJA}	62	°C/W

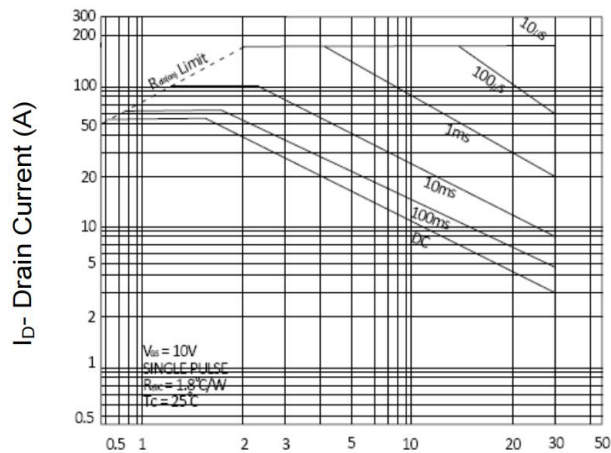
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Maximum Ratings at Tc=25°C unless otherwise specified

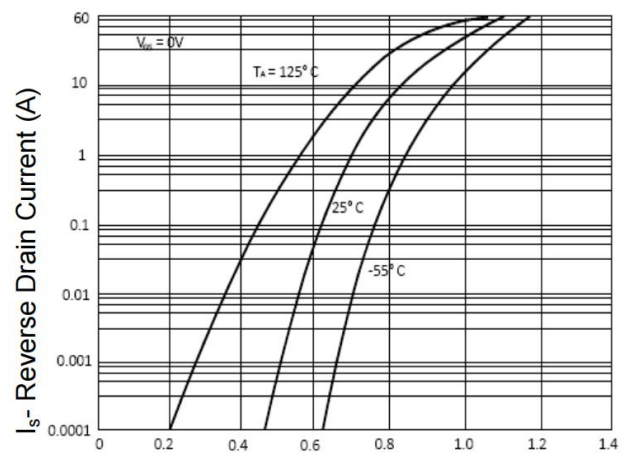
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	30	-	-	V
Drain-Source Leakage Current	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance	$V_{GS}=10\text{V}, I_D=30\text{A}$	$R_{DS(on)}$	-	3.4	4	mΩ
	$V_{GS}=4.5\text{V}, I_D=20\text{A}$		-	5.4	7	mΩ
Forward Transconductance	$V_{DS} = 5\text{ V}, I_D = 10\text{ A}$	g_{fs}	20	-	-	S
Input Capacitance	$V_{DS}=15\text{V}, V_{GS}=0\text{V},$ $f=1\text{MHz}$	C_{iss}	-	2200	-	pF
Output Capacitance		C_{oss}	-	311	-	pF
Reverse Transfer Capacitance		C_{rss}	-	210	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=15\text{V}$ $V_{GS}=10\text{V}$ $R_G=3\Omega$ $I_D=30\text{A}$	$t_{d(on)}$	-	20	-	ns
Rise Time(Note2)		T_r	-	15	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	60	-	ns
Fall Time(Note2)		t_f	-	10	-	ns
Total Gate Charge(Note2)	$V_{DS}=15\text{V}$ $V_{GS}=10\text{V}$ $I_D=30\text{A}$	Q_g	-	51	-	nC
Gate to Source Charge(Note2)		Q_{gs}	-	14	-	nC
Gate to Drain Charge(Note2)		Q_{gd}	-	11	-	nC
Maximun Body-Diode Continuous Current		I_S	-	-	100	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	300	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{V}, I_S=1\text{A}, T_J=25^\circ\text{C}$	V_{SD}	-	-	1.2	V
Reverse Recovery Time	$I_S = I_F, I_{SD}=20\text{A}, V_{GS} = 0\text{ V},$ $dI / dt = 100\text{ A}/\mu\text{s}$	t_{rr}	-	10	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.7	-	nC

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

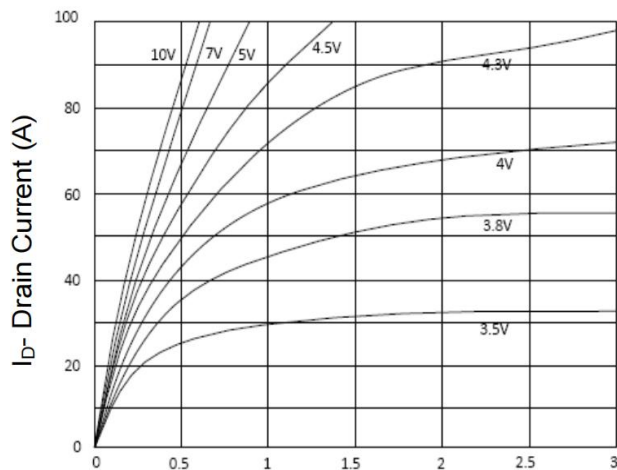
Ratings and Characteristic Curves



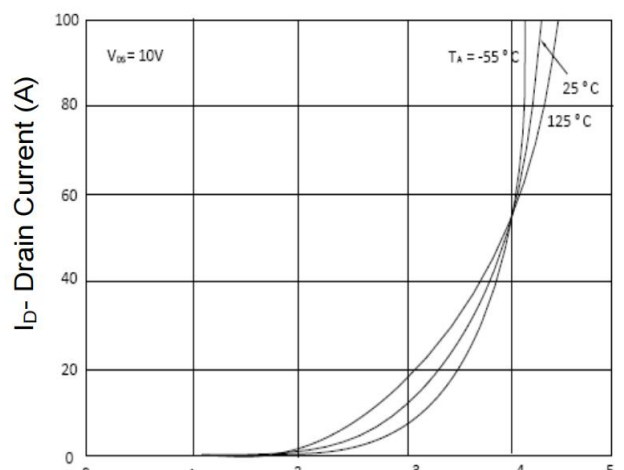
V_{DS} Drain-Source Voltage (V)



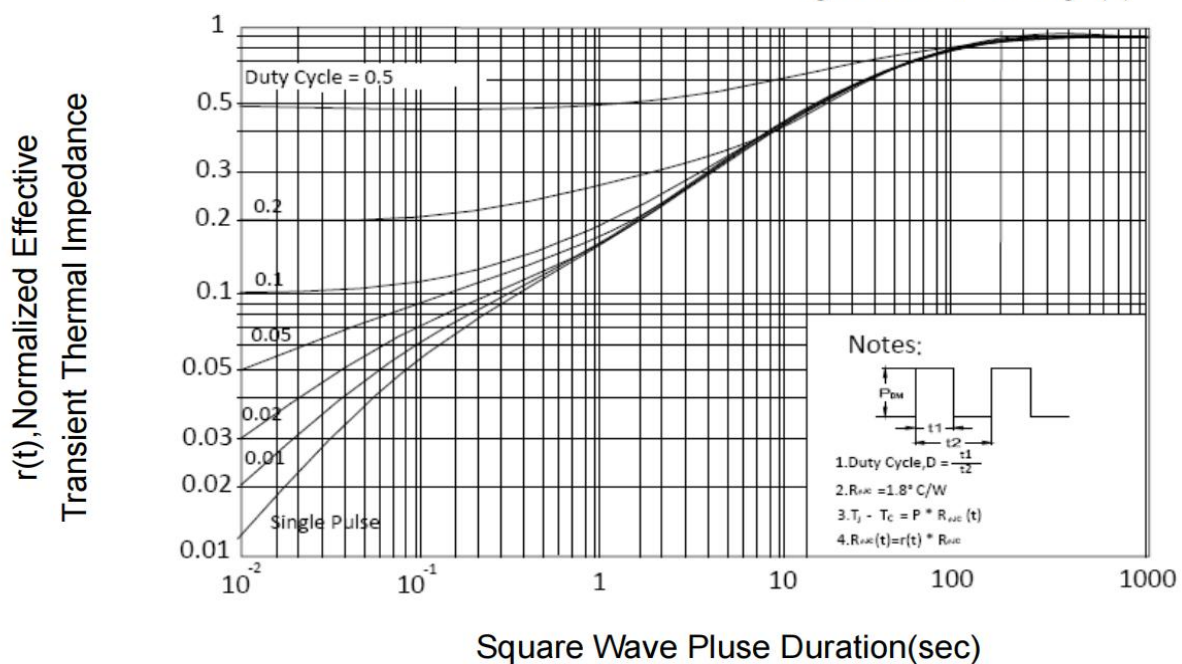
V_{SD} Source-Drain Voltage (V)



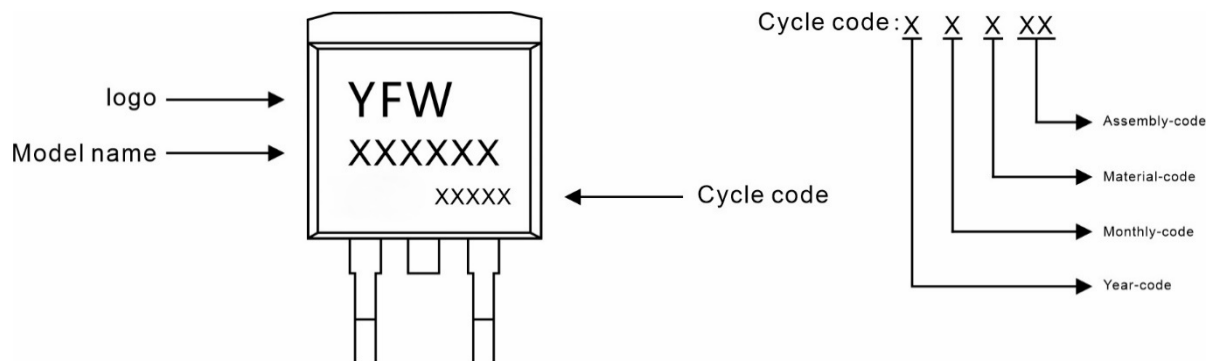
V_{DS} Drain-Source Voltage (V)



V_{GS} Gate-Source Voltage (V)



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW100N03AS	TO-263	0.04oz(1.16g)	800pcs/reel	1600pcs/box 8000pcs/Carton

Package Dimensions

TO-263

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
A2	4.30	4.55	0.169	0.179
B	1.10	1.50	0.043	0.059
b	0.70	0.90	0.028	0.035
b1	1.20	1.50	0.047	0.059
c	0.30	0.60	0.012	0.024
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
L	15.00	15.30	0.591	0.602
L1	5.20	5.40	0.205	0.213
L2	2.40	2.60	0.094	0.102
L3	1.60	1.80	0.063	0.071

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