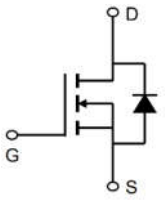
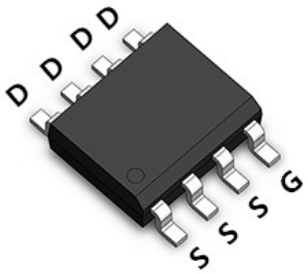
100V N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	20A
V_{DS}	100V
R_{DSON}-typ(@V_{GS}=10V)	＜8.0mΩ(Typ:6.0mΩ)
R_{DSON}-typ(@V_{GS}=4.5V)	＜10.0mΩ(Typ:8.0mΩ)





SOP-8

DESCRIPTION

The YFW20N10S uses advanced SGT technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 10V. This device is suitable for use as a Battery protection or in other Switching application.

APPLICATION

- DC/DC Converter
- LED Backlighting
- Power Management Switches
- YFW-SGT technology

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Parameter		Symbol	Value	Units
Drain-to-Source Voltage		V_{DS}	100	V
Gate-to-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A = 25°C	I_D	20	A
	T_A = 100°C		14	
Pulsed Drain Current (1)		I_{DM}	80	A
Single Pulsed Avalanche Energy (2)		E_{AS}	132	mJ
Power Dissipation	T_A= 25°C	P_D	3.5	W
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	36	°C/W
Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	I_D = 250μA, V_{GS} = 0V	BV_{DSS}	100	-	-	V
Zero Gate Voltage Drain Current	V_{DS} = 100V, V_{GS} = 0V	I_{DSS}	-	-	1.0	μA
Gate-Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(th)}$	1.0	2.0	2.5	V
Static Drain-Source ON-Resistance	V_{GS} = 10V, I_D = 10A	$R_{DS(ON)}$	-	6.0	8.0	mΩ
	V_{GS} = 4.5V, I_D = 10A		-	8.0	10.0	mΩ
Input Capacitance	V_{GS} = 0V V_{DS} = 50V f = 1MHz	C_{iss}	-	2370	-	pF
Output Capacitance		C_{oss}	-	910	-	
Reverse Transfer Capacitance		C_{rss}	-	14	-	
Total Gate Charge	V_{GS} = 0 to 10V V_{DS} = 50V I_D = 20A	Q_g	-	45	-	nC
Gate Source Charge		Q_{gs}	-	9	-	
Gate Drain("Miller") Charge		Q_{gd}	-	7	-	
Turn-On DelayTime	V_{GS} = 10V V_{DD} = 50V I_D= 20A R_{GEN} = 3Ω	$t_{d(on)}$	-	12	-	ns
Turn-On Rise Time		T_r	-	15	-	
Turn-Off DelayTime		$t_{d(OFF)}$	-	33	-	
Turn-Off Fall Time		t_f	-	20	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	20	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	80	A
Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = 20A	V_{SD}	-	-	1.2	V
Body Diode Reverse Recovery Time	I_F = 20A, di/dt = 100A/μs	trr	-	55	-	ns
Body Diode Reverse Recovery Charge		Qrr	-	77	-	nC

Notes:

1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2.E_{AS} condition: Starting T_J=25°C, V_{DD}=50V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=23A
3.Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Performance Characteristics

Figure 1: Output Characteristics

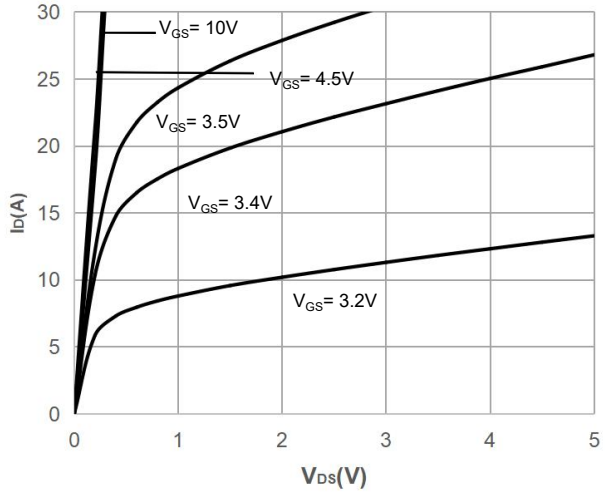


Figure 2: Typical Transfer Characteristics

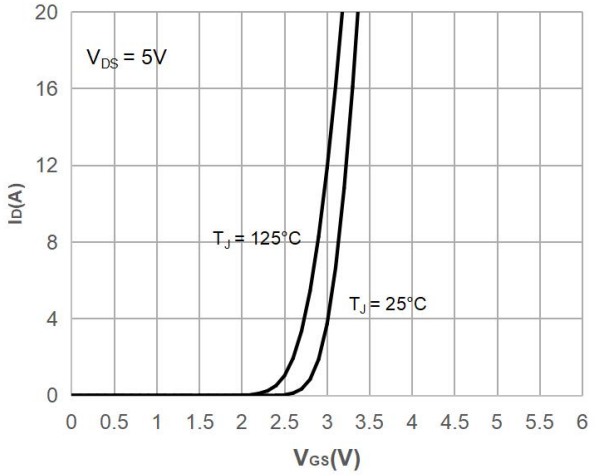


Figure 3: On-resistance vs. Drain Current

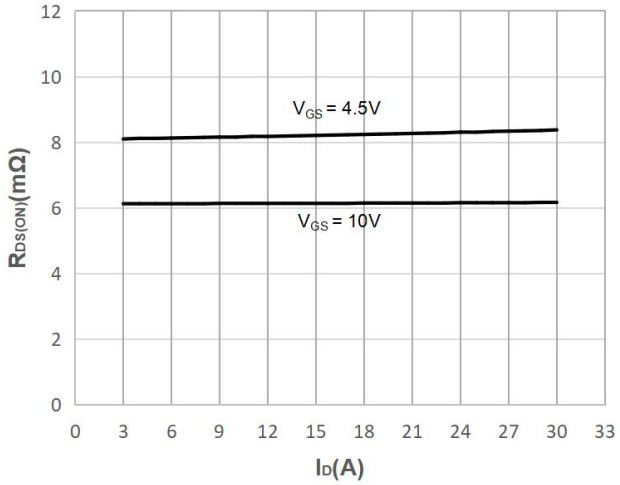


Figure 4: Body Diode Characteristics

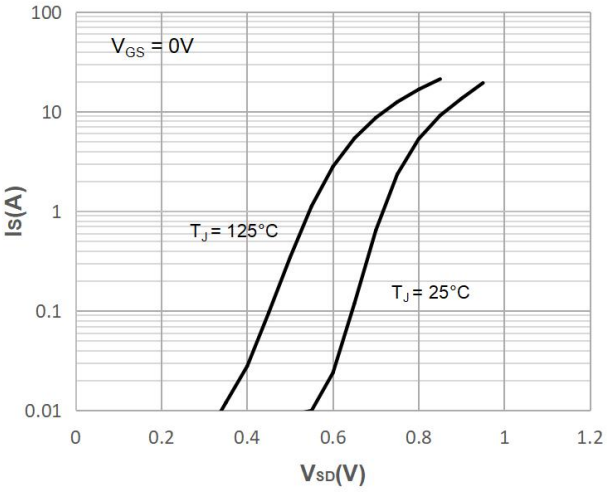


Figure 5: Gate Charge Characteristics

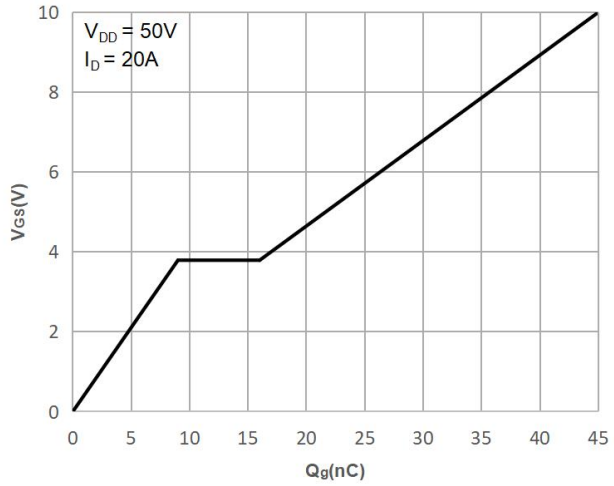
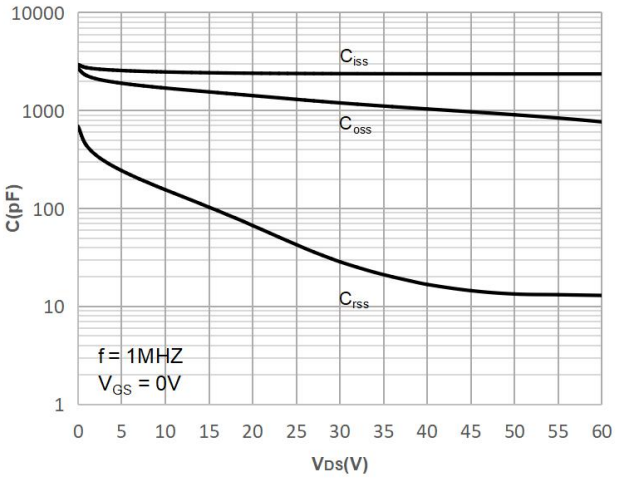


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

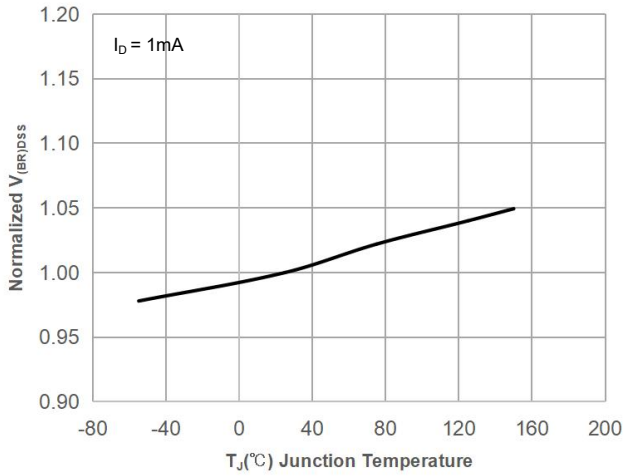


Figure 8: Normalized on Resistance vs. Junction Temperature

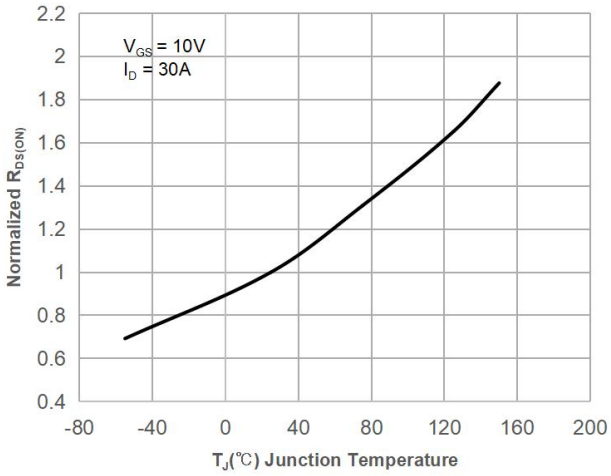


Figure 9: Maximum Safe Operating Area

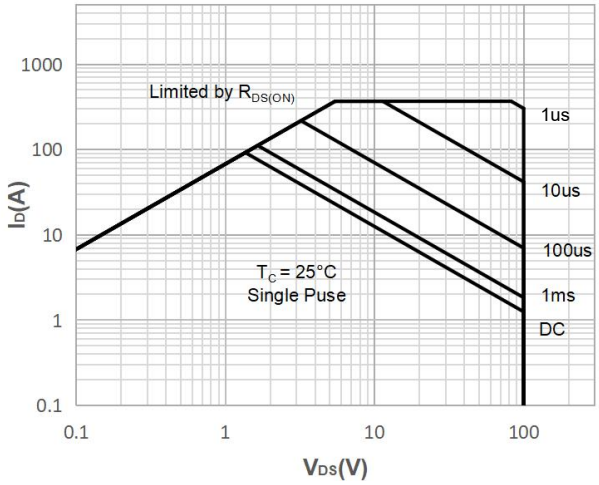


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

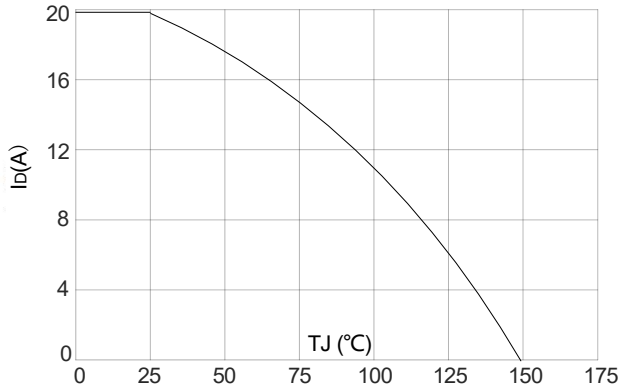


Figure 11: Normalized Maximum Transient Thermal Impedance

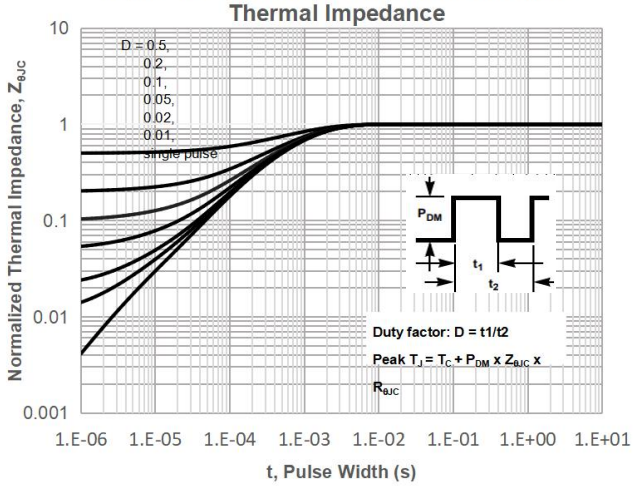
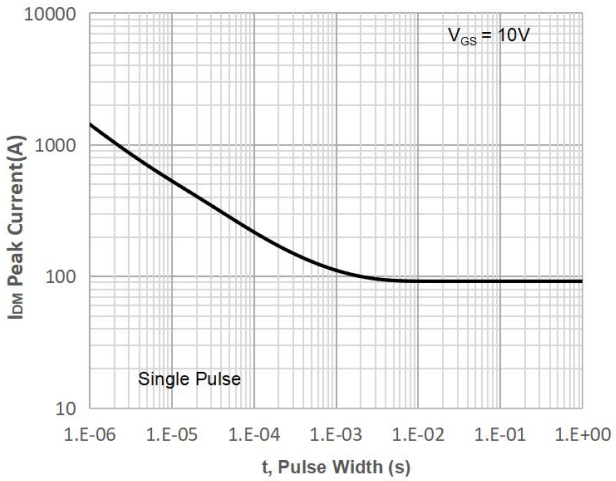
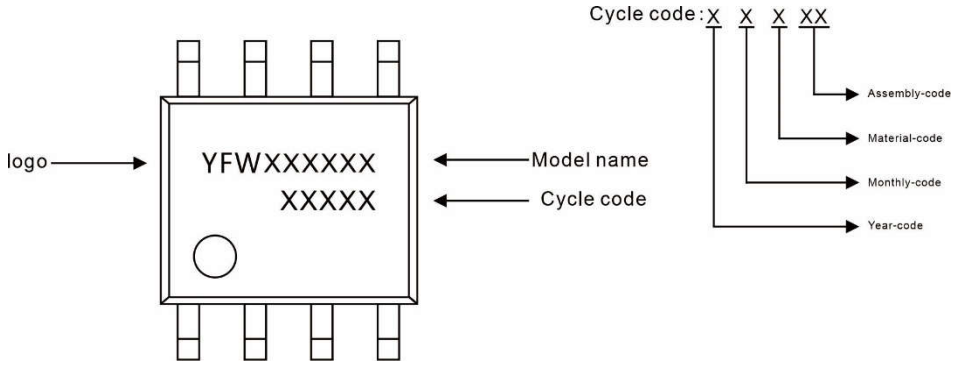


Figure 12: Peak Current Capacity



Marking Diagram

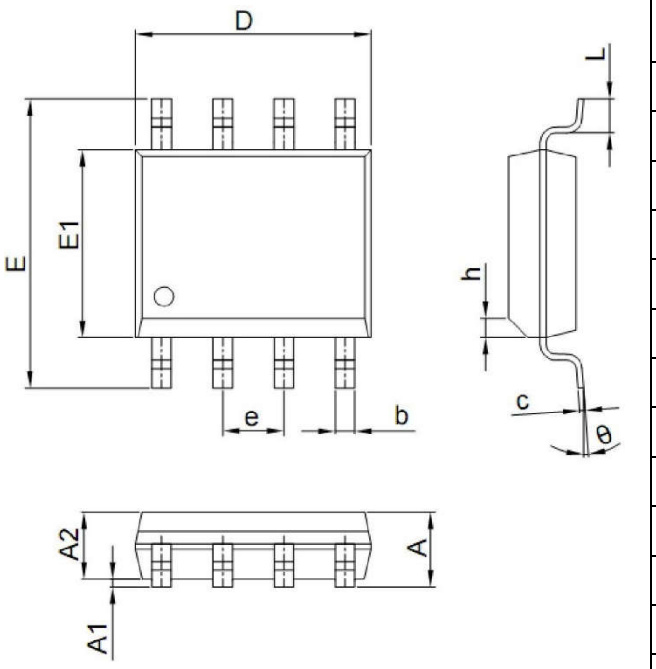


Ordering information

Package	Packing Description	Packing Quantity
SOP-8	Tape/Reel,13"reel	3000PCS/Reel 30000PCS/Carton

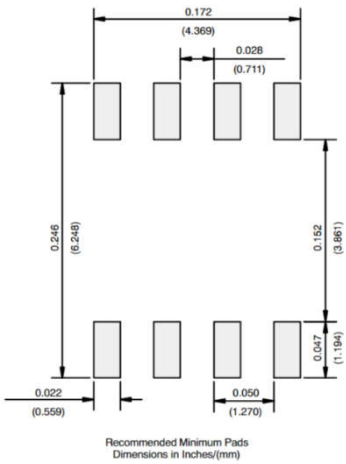
Package Dimensions

SOP-8



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	1.35	1.50	0.053	0.059
b	0.35	0.55	0.014	0.022
c	0.15	0.25	0.006	0.010
D	4.80	5.00	0.189	0.197
D1	3.10	3.50	0.122	0.138
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
E2	2.20	2.60	0.087	0.102
e	1.27 (BSC)		0.050 (BSC)	
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

The recommended mounting pad size



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