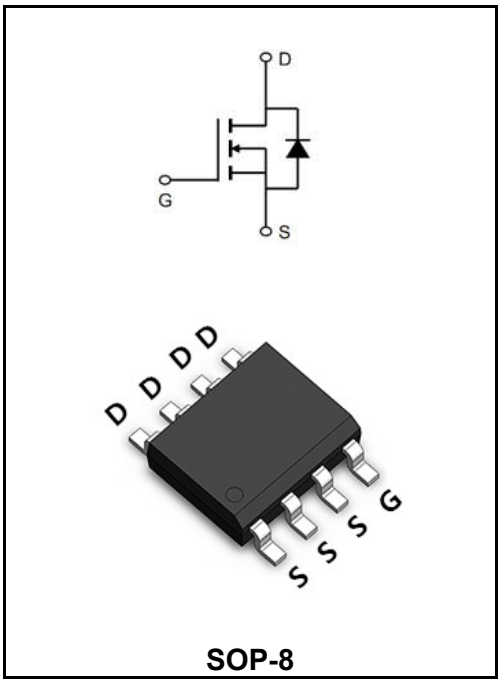
100V N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	10A
V_{DS}	100V
R_{DSON}-typ(@V_{GS}=10V)	＜110mΩ(Typ:86 mΩ)



SOP-8

DESCRIPTION

The YFW10N10S uses 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.

APPLICATION

- Automative lighting
- Load switch
- PSE

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

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25℃	I_D	10	A
	T_A=100℃		6.5	A
Pulsed Drain Current [1]		I_{DM}	24	A
Power Dissipation	T_C=25℃	P_D	30	W
Power Dissipation[3]	T_A=25℃	P_D	2.7	W
Storage Temperature Range		T_{STG}	-55 to 150	℃
Operating Junction Temperature Range		T_J	-55 to 150	℃
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	85	℃/W
Maximum Thermal Resistance, Junction-case		$R_{\theta JC}$	5.1	℃/W

Electrical Characteristics @T_J=25℃ (unless otherwise specified)

Parameter	Test Condition	Symbol	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	BV_{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_{DS}=0V, V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{GS(th)}$	1.0	1.5	2.5	V
Static Drain-Source on-Resistance	V_{GS}=10V, I_D=5A	$R_{DS(ON)}$	-	86	110	mΩ
	V_{GS}=4.5V, I_D=3A		-	96	125	
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1.0MHz	C_{iss}	-	645	-	pF
Output Capacitance		C_{oss}	-	38	-	
Reverse Transfer Capacitance		C_{rss}	-	33	-	
Total Gate Charge	V_{DS}=30V I_D=5A V_{GS}=10V	Q_g	-	12	-	nC
Gate-Source Charge		Q_{gs}	-	2.2	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	2.5	-	
Turn-on Delay Time	V_{DS}=30V I_D=10A R_G=1.8Ω V_{GS}=10V	$t_{d(on)}$	-	7	-	ns
Turn-on Rise Time		T_r	-	5	-	
Turn-off Delay Time		$t_{d(OFF)}$	-	16	-	
Turn-off Fall Time		t_f	-	6	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	10	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	24	A
Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=10A	V_{SD}	-	-	1.2	V
Body Diode Reverse Recovery Time	I_F=10A, dI/dt=100A/μs	trr	-	21	-	ns
Body Diode Reverse Recovery Charge		Qrr	-	21	-	nC

Note :

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 ≦ 300us , duty cycle ≦ 2%
3. The power dissipation is limited by 150℃ junction temperature
4. The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.

Typical Characteristics

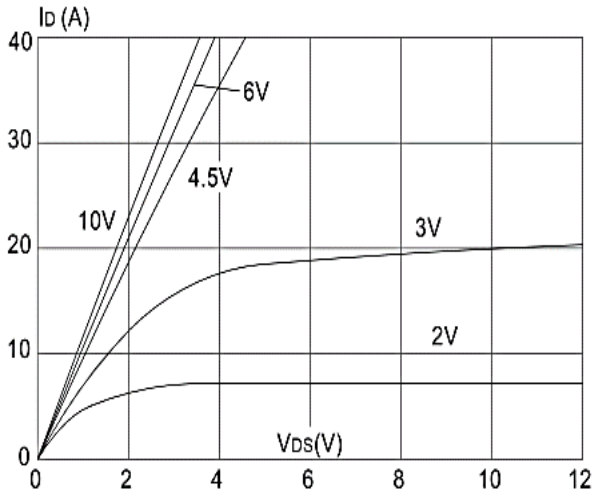


Figure1: Output Characteristics

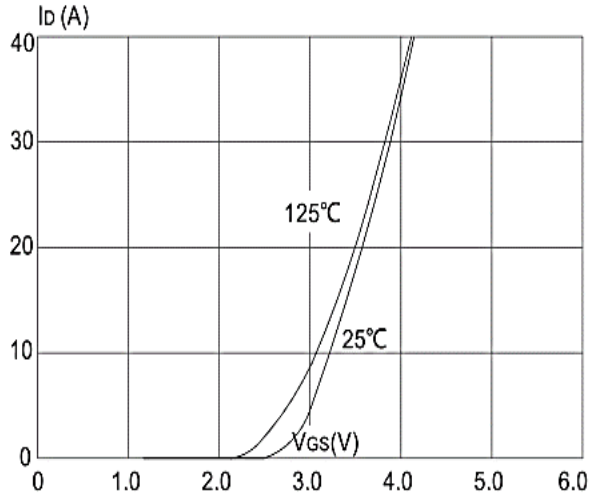


Figure 2: Typical Transfer Characteristics

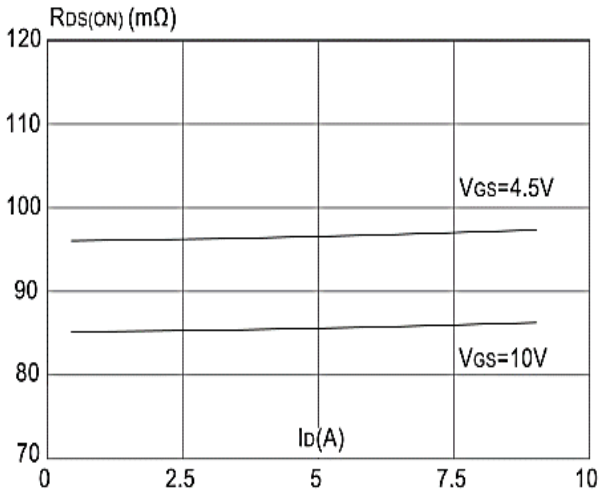


Figure 3:On-resistance vs. Drain Current

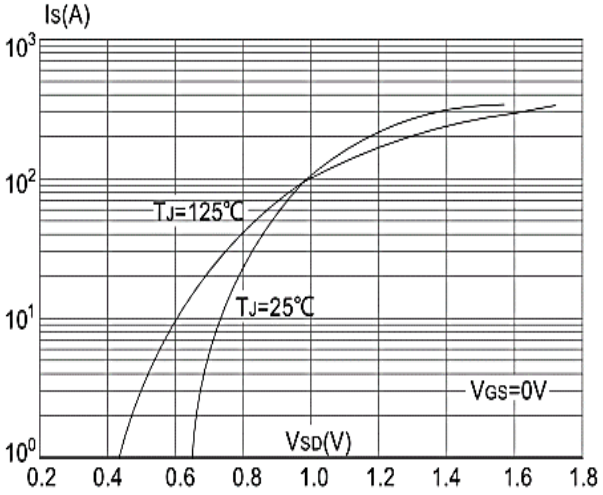


Figure 4: Body Diode Characteristics

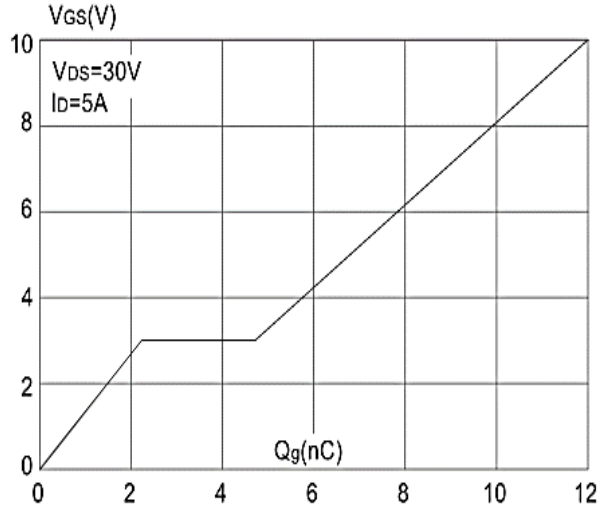


Figure 5: Gate Charge Characteristics

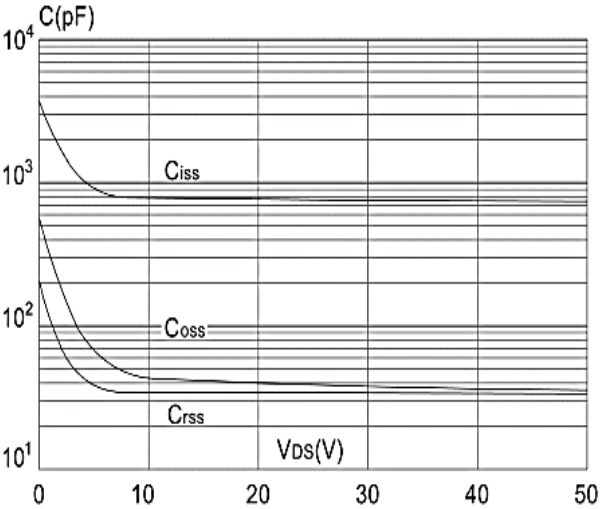


Figure 6: Capacitance Characteristics

Typical Characteristics

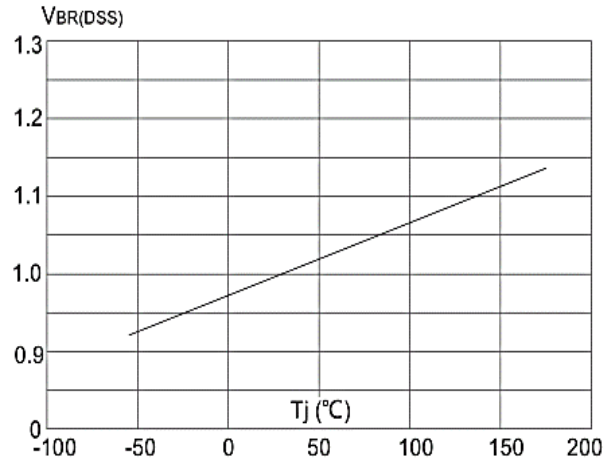


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

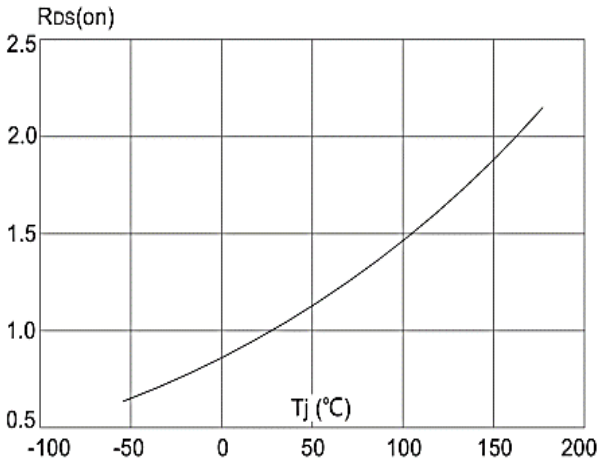


Figure 8: Normalized on Resistance vs. Junction Temperature

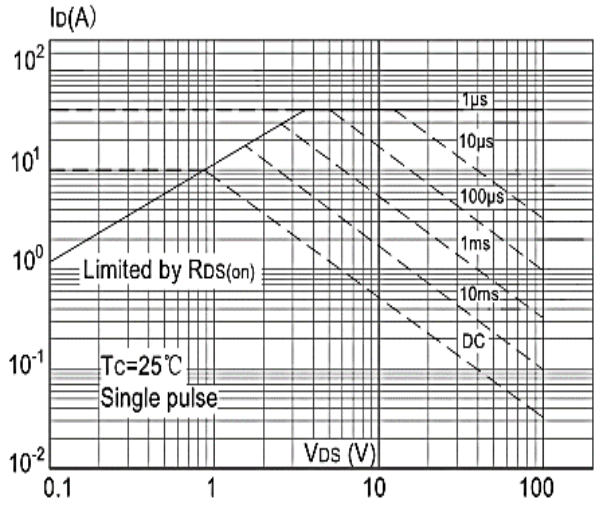


Figure 9: Maximum Safe Operating Area

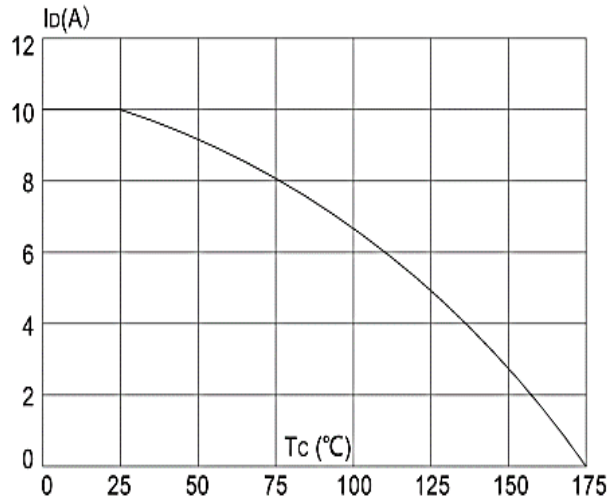


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

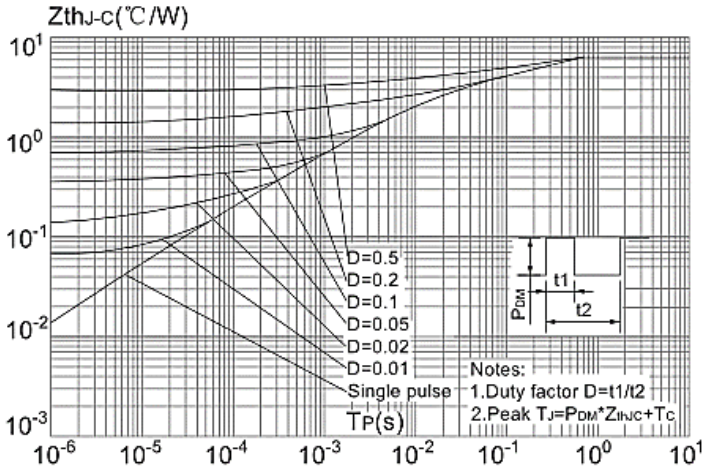
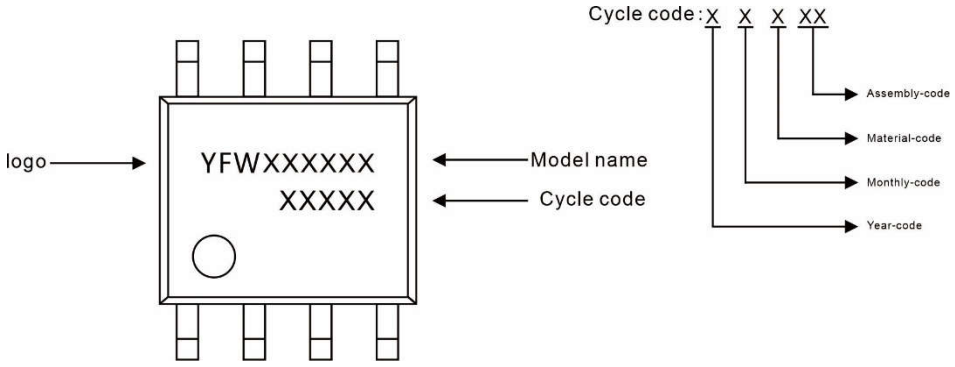


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

Marking Diagram

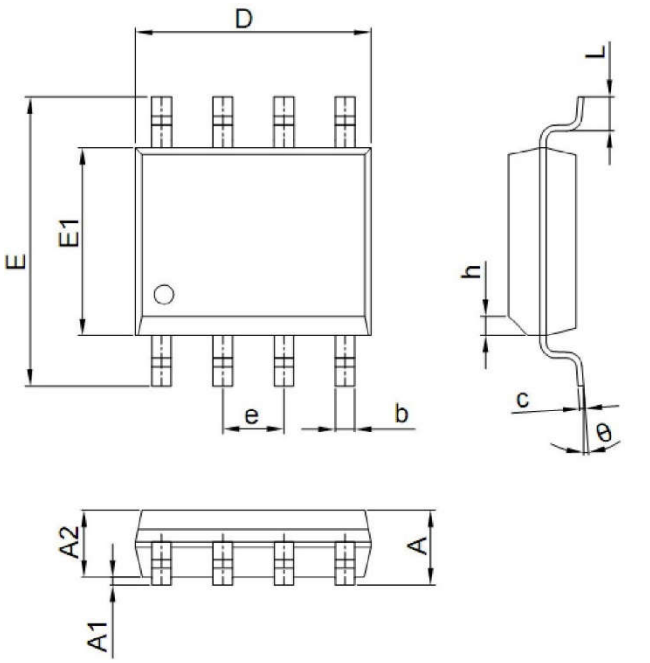


Ordering information

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

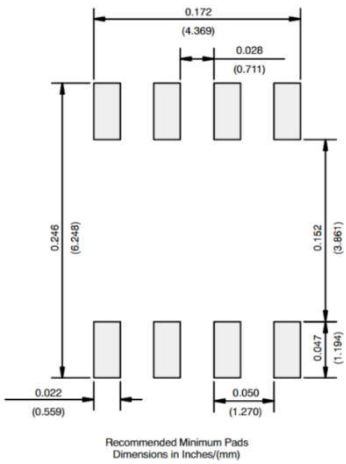
Package Dimensions

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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