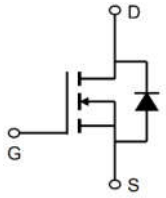
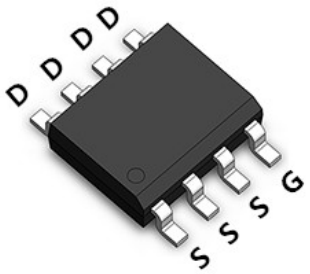
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	12.3A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 110mΩ(Type:93 mΩ)





SOP-8

Application

- Automative lighting
- Load switch
- PSE

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Drain Current, V_{GS} @ 10V @T_C=25℃	I_D	12.3	A
Drain Current, V_{GS} @ 10V @T_C=100℃	I_D	6.5	A
Pulsed Drain Current[1]	I_{DM}	24	A
Total Power Dissipation @T_C=25℃	P_D	30	W
Total Power Dissipation[3] @T_A=25℃	P_D	2.7	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Maximum Thermal Resistance, Junction ambient	$R_{\theta JA}$	85	°C/W
Maximum Thermal Resistance, Junction-case	$R_{\theta JC}$	5.1	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	V(BR)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_{GS}=±20V, V_{DS}=0V	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	$R_{DS(ON)}$	-	93	110	mΩ
	V_{GS}=4.5V, I_D=3A		-	100	140	
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 V_{GS}=10V I_D=5A	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}	-	-	40	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	t_{rr}	-	21	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	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.

Ratings and Characteristic Curves

Typical Characteristics

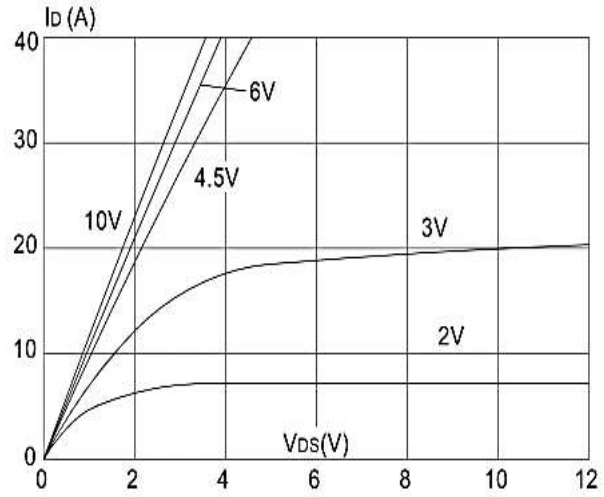


Figure1: Output Characteristics

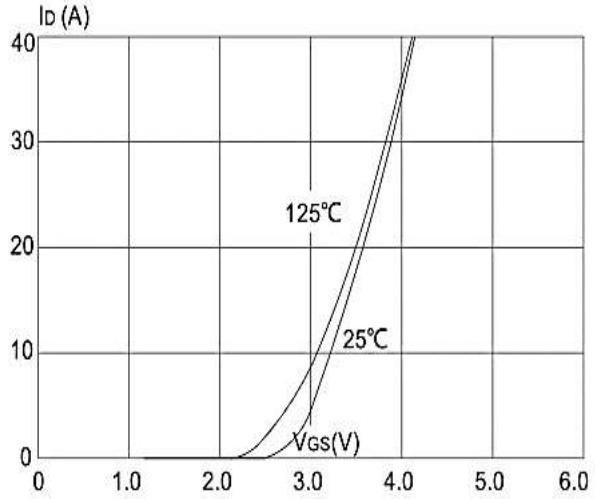


Figure 2: Typical Transfer Characteristics

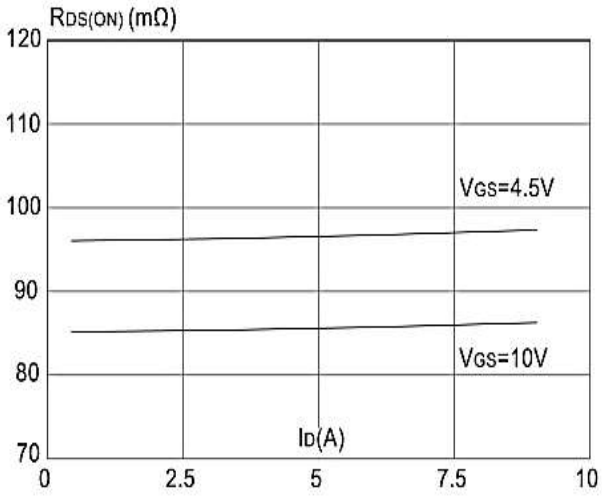


Figure 3:On-resistance vs. Drain Current

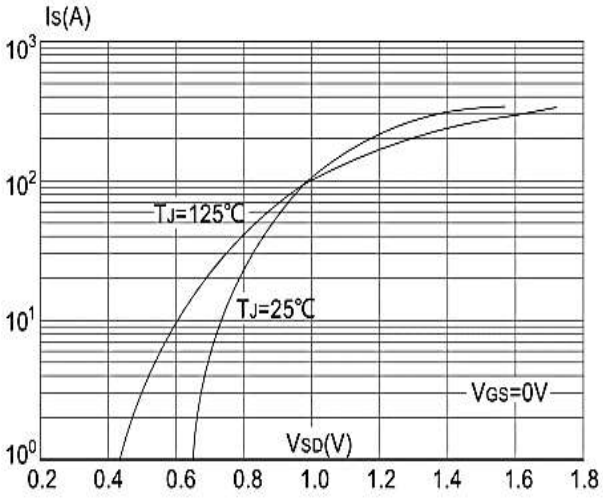


Figure 4: Body Diode Characteristics

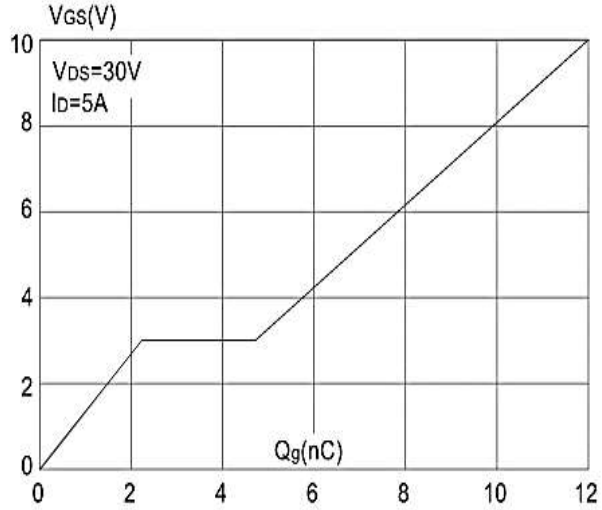


Figure 5: Gate Charge Characteristics

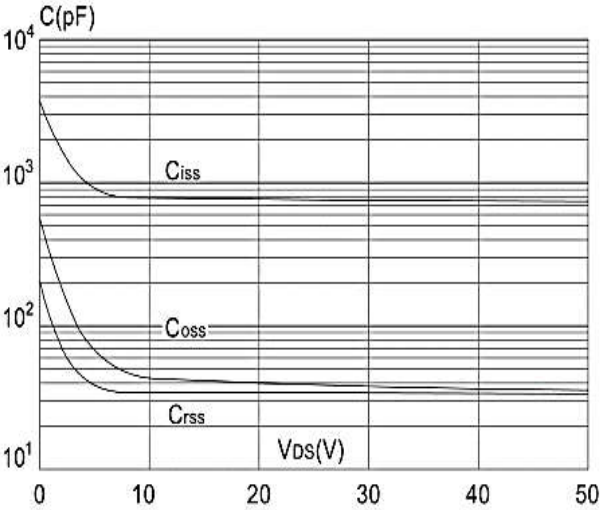


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

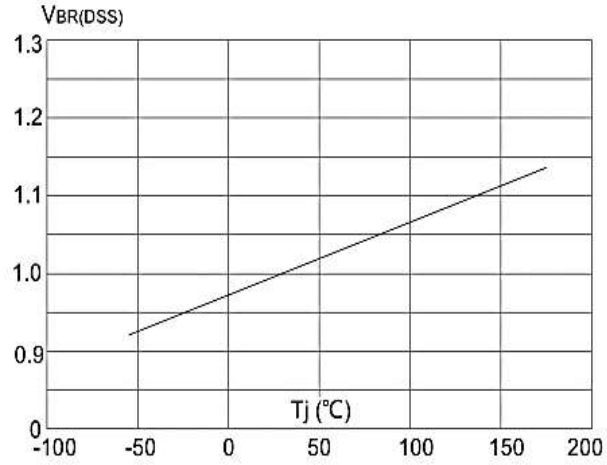


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

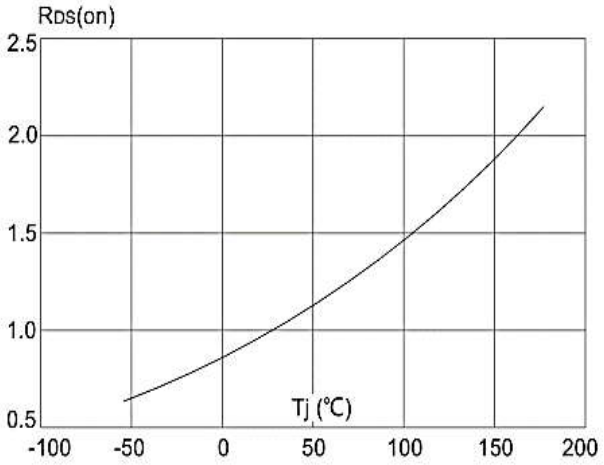


Figure 8: Normalized on Resistance vs. Junction Temperature

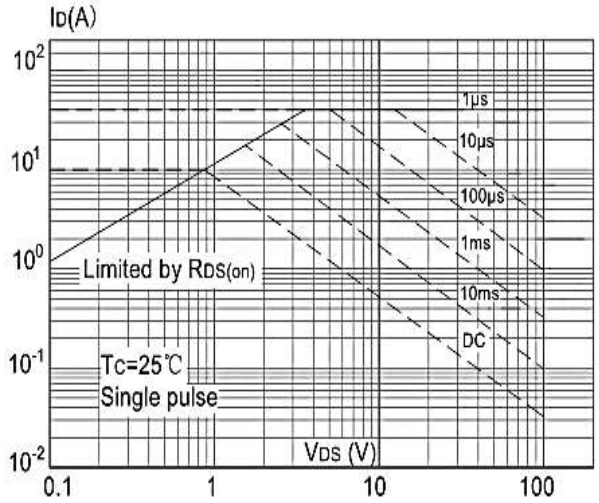


Figure 9: Maximum Safe Operating Area

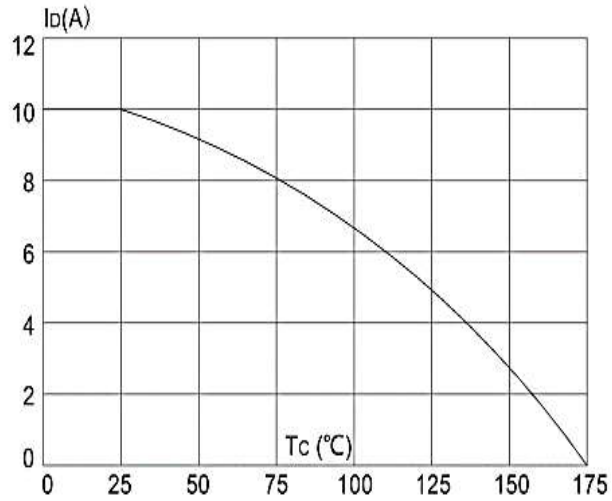


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

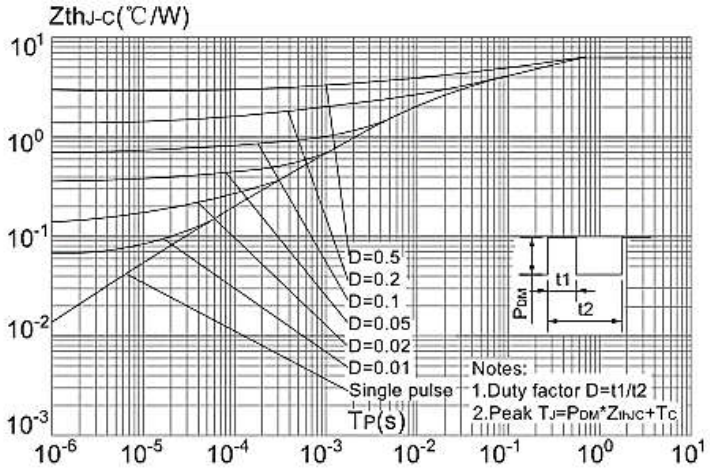
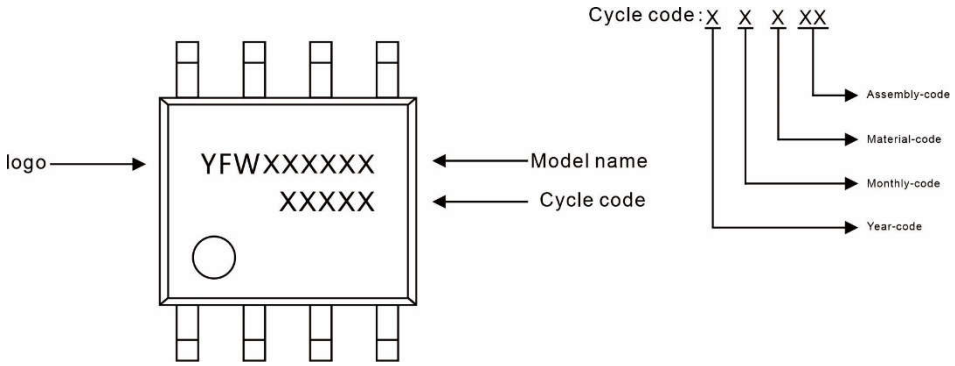


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

Marking Diagram

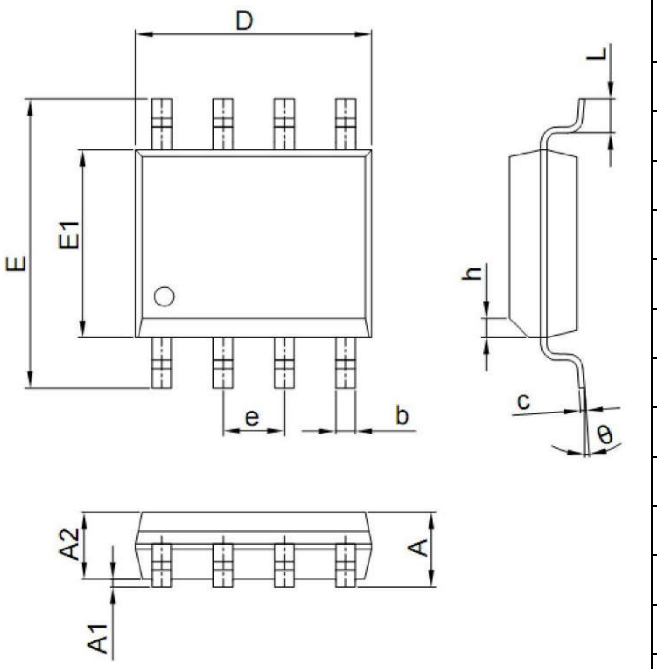


Ordering information

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

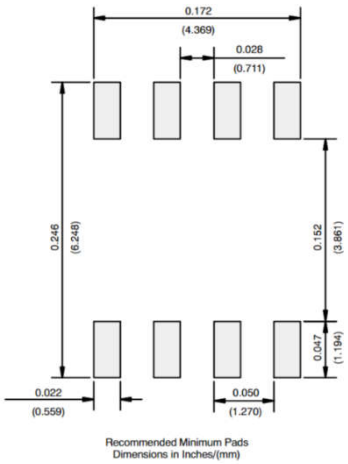
Package Dimensions

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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