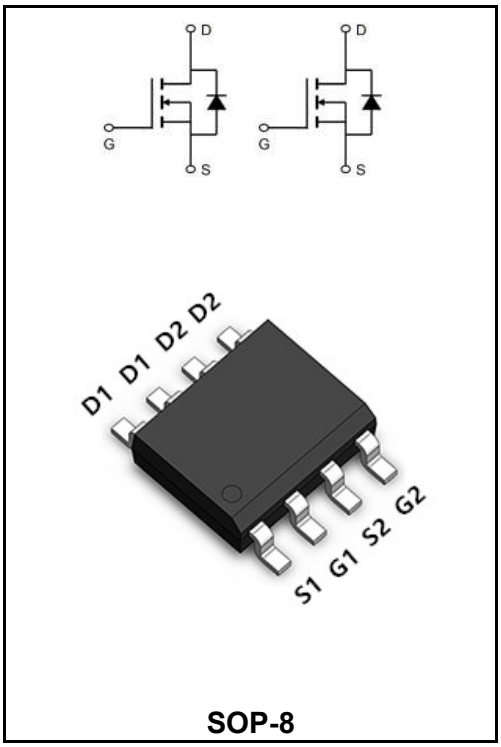
20V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	10.5A
V_{DSS}	20V
R_{DSON}-typ(@V_{GS}=4.5V)	< 18mΩ(Type:12 mΩ)



SOP-8

Application

- Battery protection
- Load switch
- Wireless charging

Product Specification Classification

Part Number	Package	Marking	Pack
YFW9928S	SOP-8	YFW9928S XXXXX	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	VDS	20	V
Gate - Source Voltage	VGS	±12	V
Continuous Drain Current, VGS @ 10V[1] @TA=25℃	I_D	10.5	A
Continuous Drain Current, VGS @10V[1] @TA=70℃	I_D	6	A
Pulsed Drain Current[2]	IDM	26	A
Total Power Dissipation[4] @TA=25℃	P_D	1.25	W
Storage Temperature Range	TSTG	-55 to +150	°C
Thermal Resistance Junction-Ambient [1]	$R_{\theta}JA$	100	°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	$V_{(BR)DSS}$	20	22	-	V
Zero Gate Voltage Drain Current	V_{DS}=20V,V_{GS}=0V	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	V_{GS}=±12V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	VGS(th)	0.5	0.7	1.2	V
Static Drain-Source on-Resistance note3	V_{GS}=4.5V, I_D=6A	$R_{DS(ON)}$	-	12	18	mΩ
	V_{GS}=2.5V, I_D=5A		-	16	20	mΩ
Input Capacitance	V_{DS}=10V V_{GS}=0V f=1.0MHz	C_{iss}	-	900	-	PF
Output Capacitance		C_{oss}	-	220	-	PF
Reverse Transfer Capacitance		C_{rss}	-	100	-	PF
Total Gate Charge	V_{DS}=10V I_D=3A V_{GS}=4.5V	Q_g	-	12	-	nC
Gate-Source Charge		Q_{gs}	-	2.3	-	nC
Gate-Drain(“Miller”) Charge		Q_{gd}	-	1.0	-	nC
Turn-on delay time	V_{DD}=10V I_D= 6A V_{GS}=4.5V R_G = 3Ω	$t_{d(on)}$	-	10	-	ns
Turn-on Rise Time		T_r	-	11	-	ns
Turn-Off Delay Time		$t_{d(OFF)}$	-	35	-	ns
Turn-Off Fall Time		t_f	-	30	-	ns
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	6.5	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}		-	26	A
Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=20A	V_{SD}	-	-	1.2	V

Notes:
1、Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2、 EAS condition : T J =25℃, V DD =30V, VG =10V, L=0.5mH, Rg=25Ω, IAS =3.5A
3、 Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Ratings and Characteristic Curves

Typical Characteristics

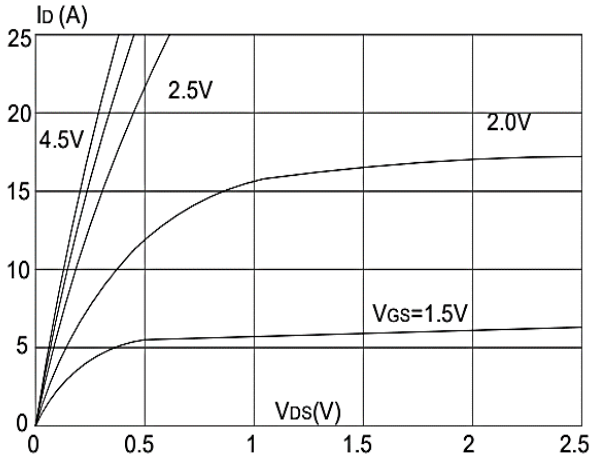


Figure1: Output Characteristics

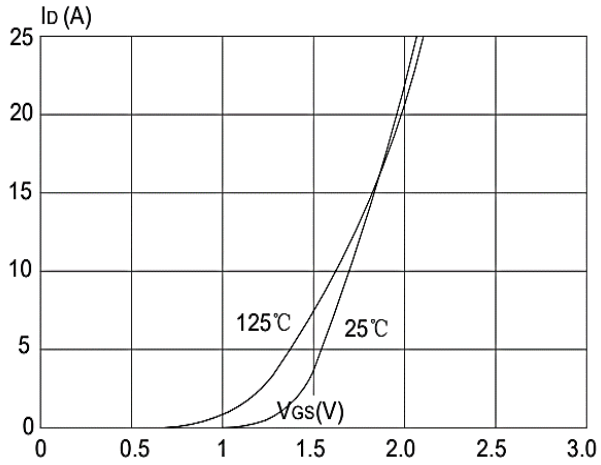


Figure 2: Typical Transfer Characteristics

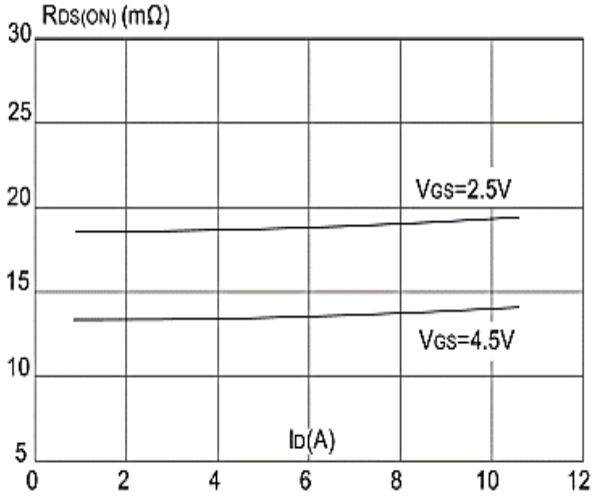


Figure 3:On-resistance vs. Drain Current

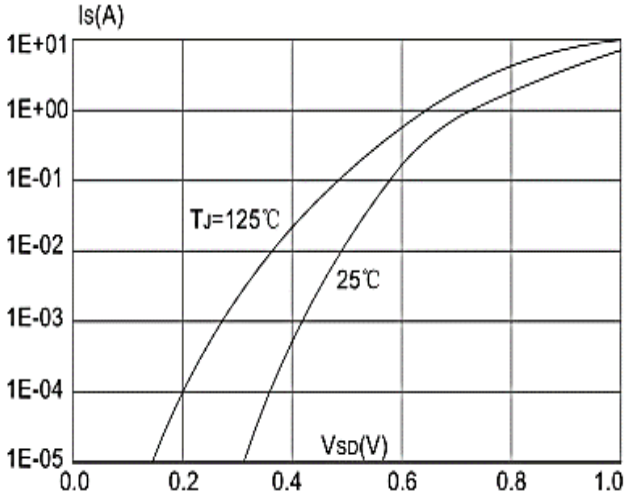


Figure 4: Body Diode Characteristics

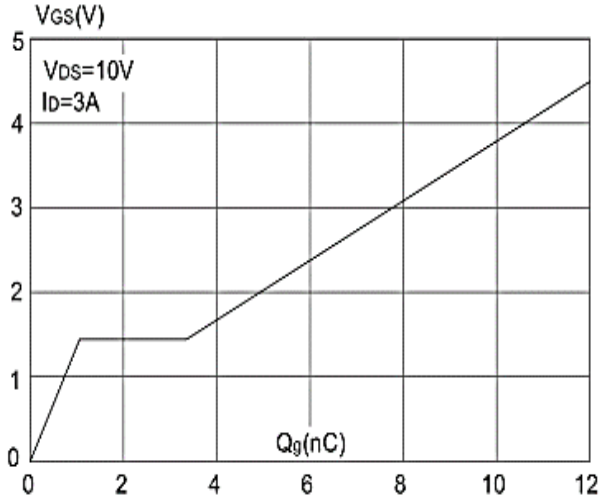


Figure 5: Gate Charge Characteristics

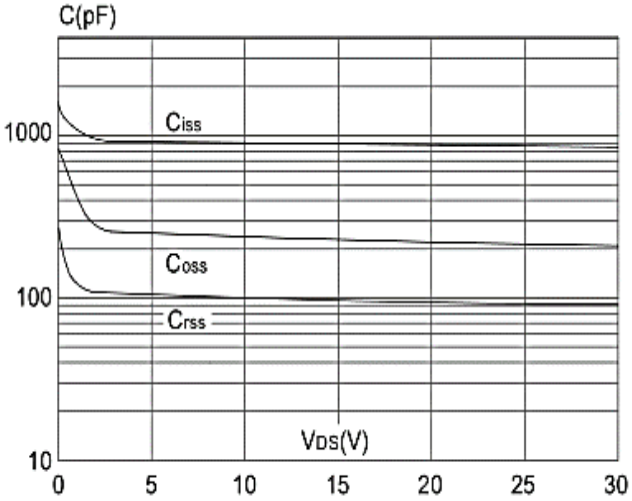


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

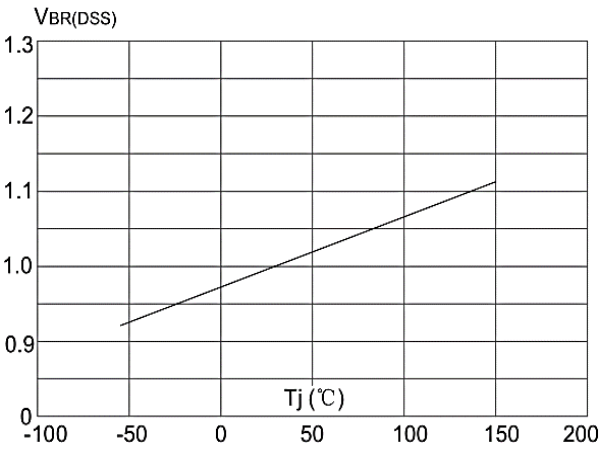


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

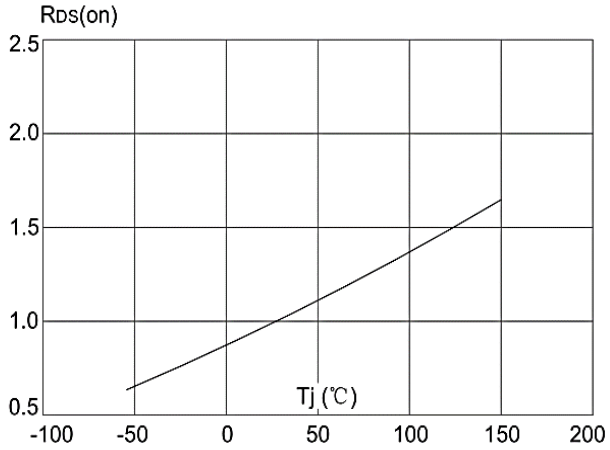


Figure 8: Normalized on Resistance vs Junction Temperature

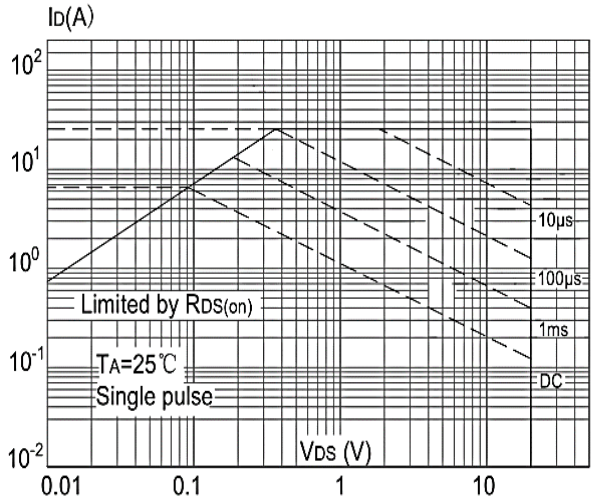


Figure 9: Maximum Safe Operating Area vs. Case Temperature

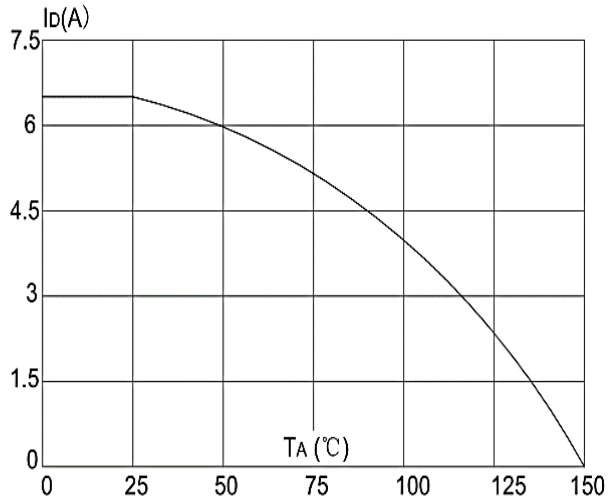


Figure 10: Maximum Continuous Drain Current

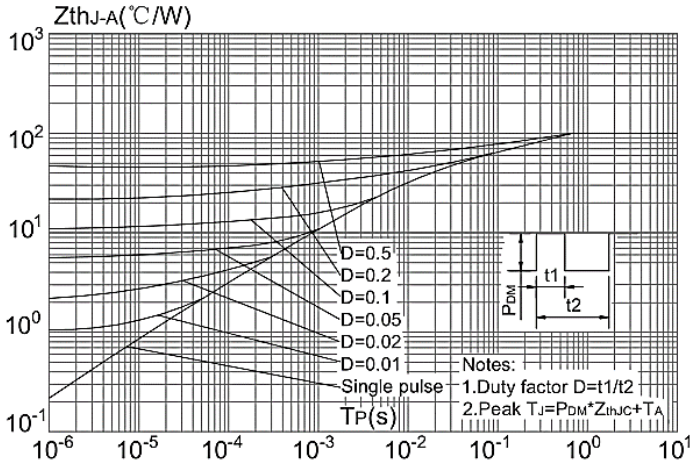
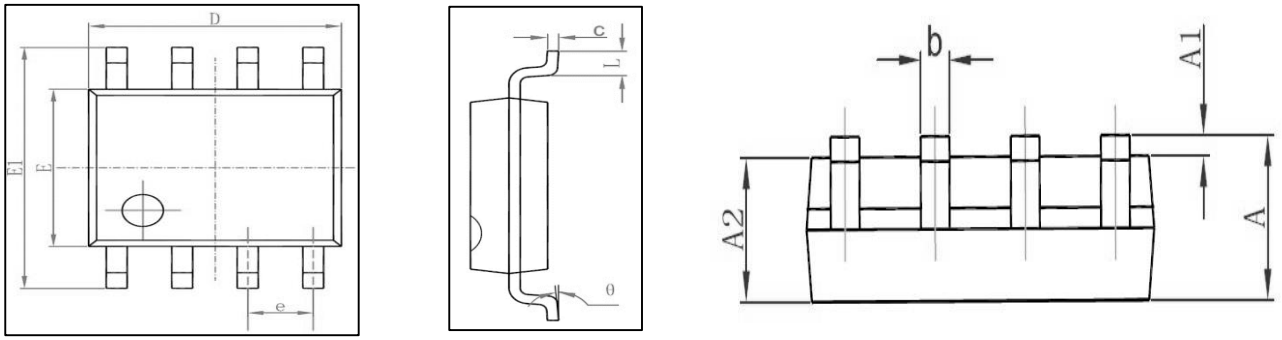


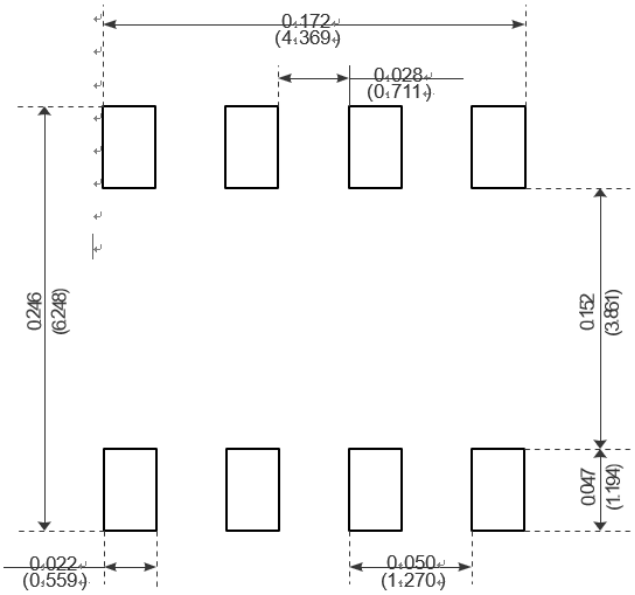
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

Package Outline Dimensions Millimeters

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Recommended Minimum Pads