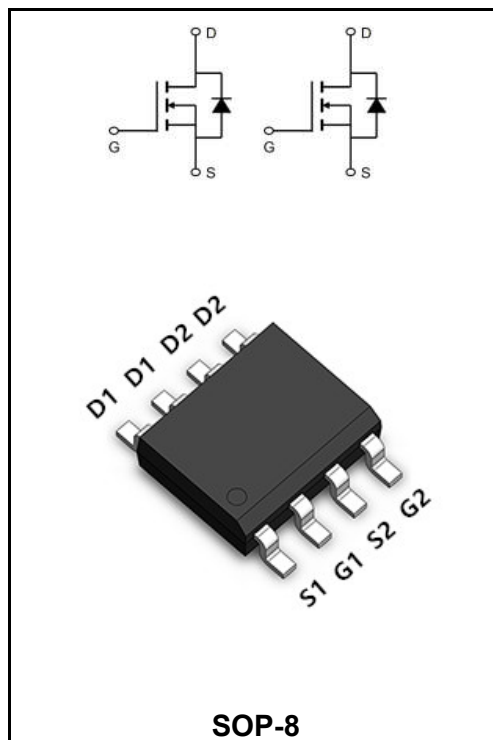


20V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

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



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°C	I_D	10.5	A
Continuous Drain Current, VGS @10V ¹ @TA=70°C	I_D	6	A
Pulsed Drain Current ²	IDM	26	A
Total Power Dissipation ⁴ @TA=25°C	P_D	1.25	W
Storage Temperature Range	TSTG	-55 to +150	°C
Thermal Resistance Junction-Ambient ¹	R_{θJA}	100	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$V_{(BR)DSS}$	20	22	-	V
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	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	m Ω
	$V_{GS}=2.5V, I_D=5A$		-	16	20	m Ω
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	$V_{DD}=10V$ $I_D=6A$ $V_{GS}=4.5V$ $R_G=3\Omega$	$t_{d(on)}$	-	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°C, V DD =30V, VG =10V, L=0.5mH, Rg=25 Ω , IAS =3.5A
- 3、Pulse Test: Pulse Width $\leq$ 300 μ s, Duty Cycle $\leq$ 0.5%

Ratings and Characteristic Curves

Typical Characteristics

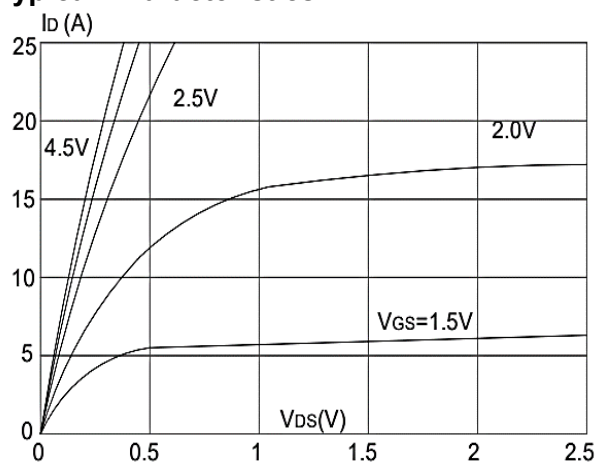


Figure1: Output Characteristics

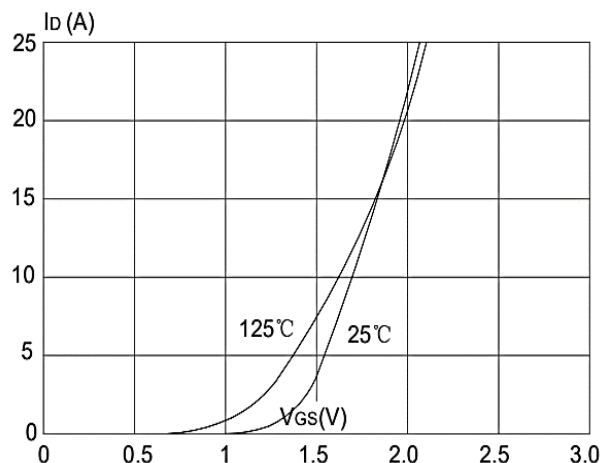


Figure 2: Typical Transfer Characteristics

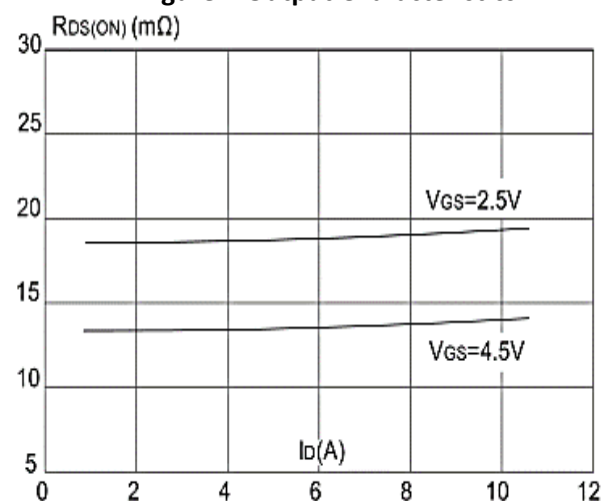


Figure 3: On-resistance vs. Drain Current

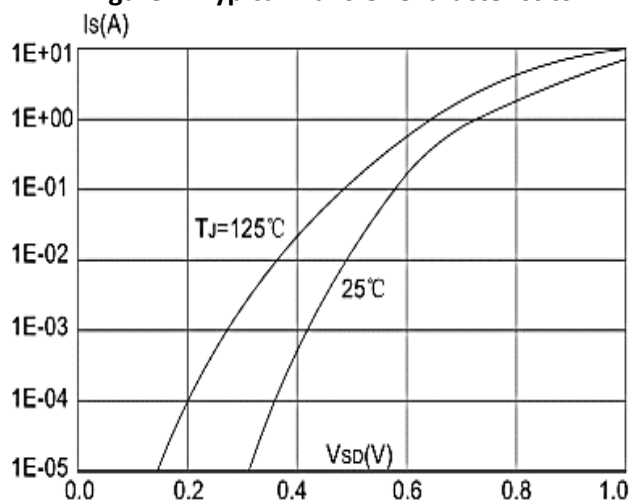


Figure 4: Body Diode Characteristics

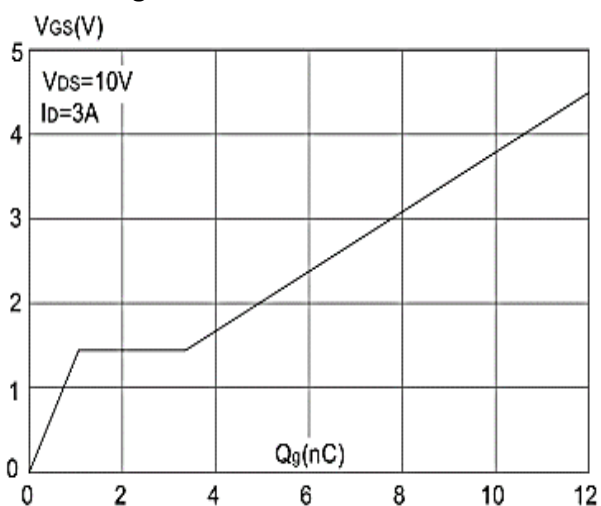


Figure 5: Gate Charge Characteristics

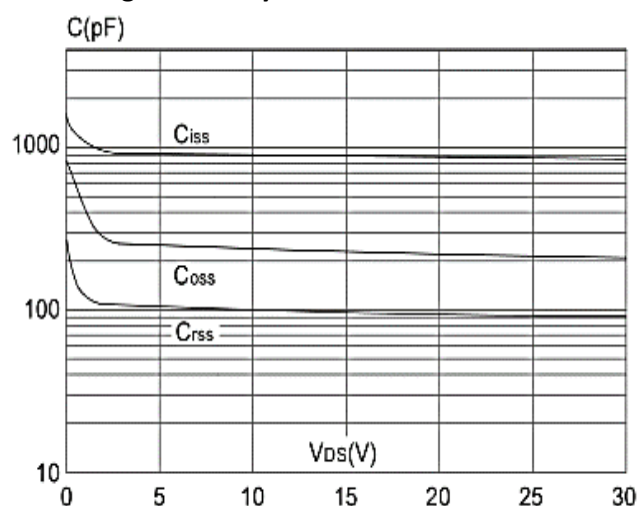


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

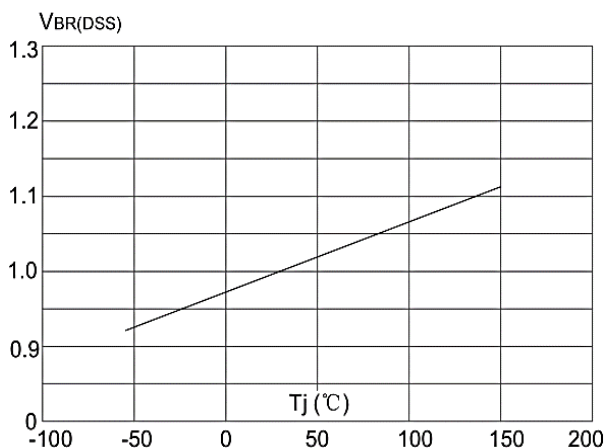


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

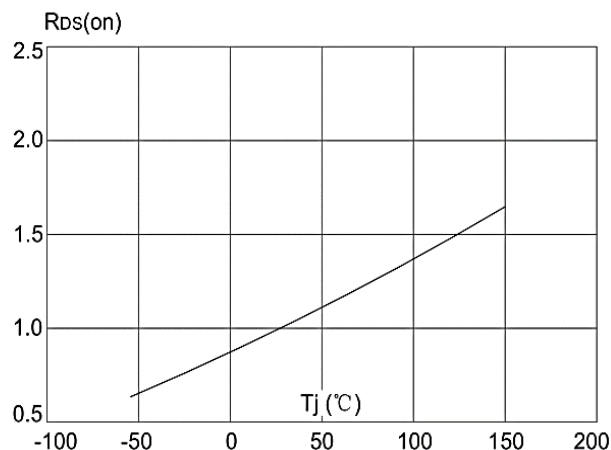


Figure 8: Normalized on Resistance vs. Junction Temperature

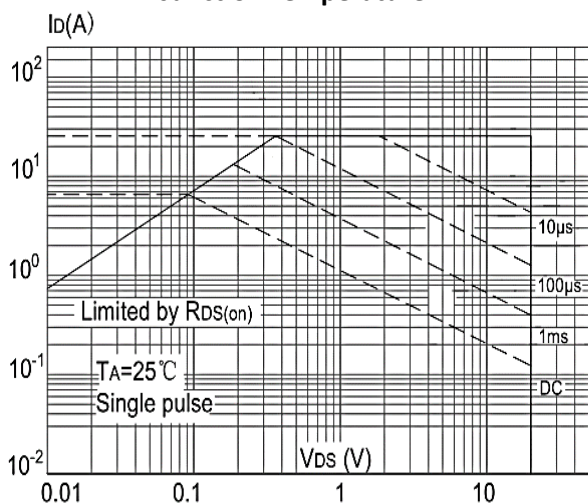


Figure 9: Maximum Safe Operating Area vs. Case Temperature

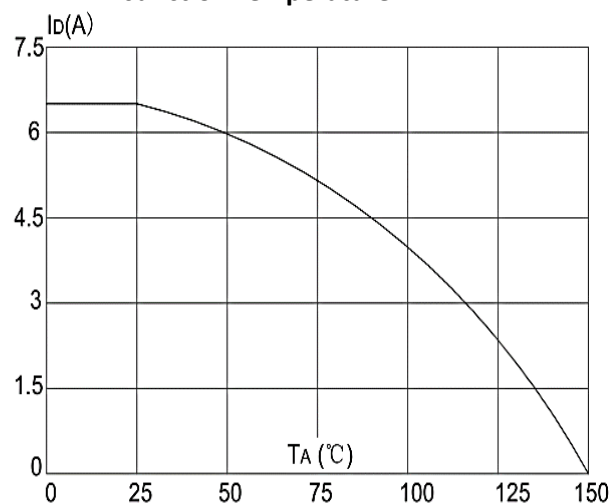


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

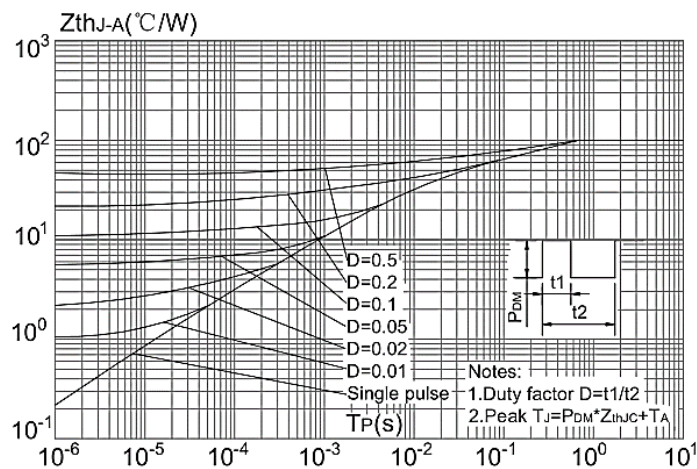
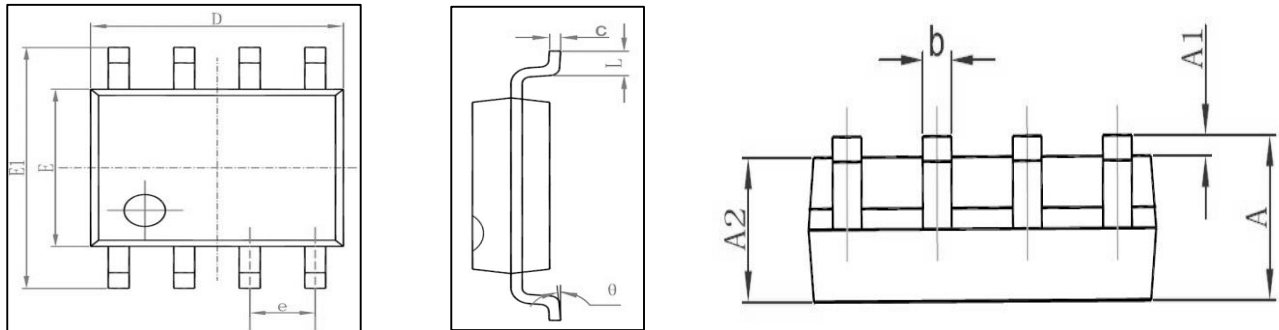
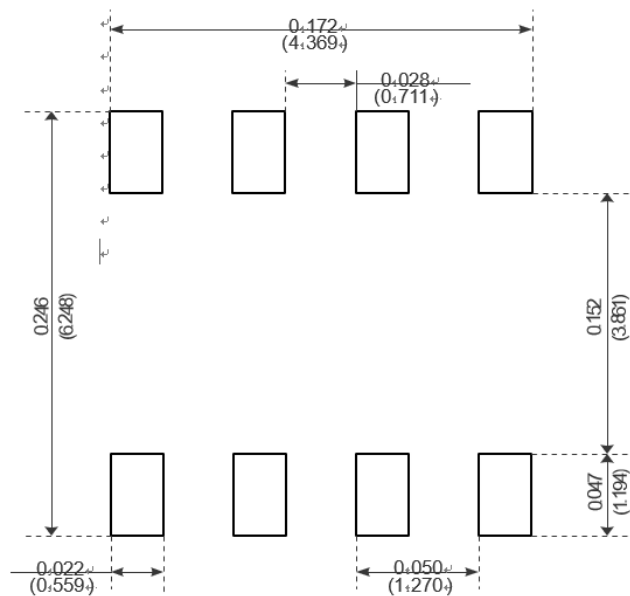


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

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