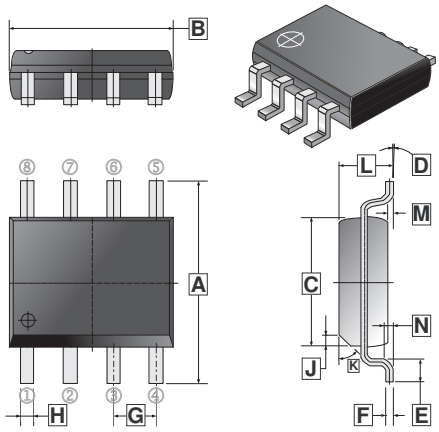
YEA SHIN TECHNOLOGY CO., LTD

YS4228M

Dual N-Channel Enhancement MOSFET

VDS= 30V, ID= 8.9A

SOP-8



DESCRIPTION

YS4228M is the highest performance trench dual N-ch MOSFETs with extreme high cell density, which provides excellent $R_{DS(ON)}$ and gate charge for most synchronous buck converter applications.

The YS4228M meet the RoHS and Green Product requirement with full function reliability approved.

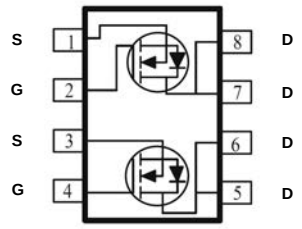
FEATURES

- Advanced high cell density Trench technology
- Super low gate charge
- Green Device Available

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.79	6.20	H	0.33	0.51
B	4.70	5.11	J	0.375 REF.	
C	3.70	4.10	K	45°REF.	
D	0°	8°	L	1.30	1.752
E	0.38	1.27	M	0.10	0.25
F	0.10	0.26	N	0.25 REF.	
G	1.27 TYP.				



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current@ V_{GS}=10V [1]	T_A=25℃	I_D	8.9	A
	T_A=70℃		7.1	
Pulsed Drain Current [2]		I_{DM}	37	A
Power Dissipation@ T_A=25℃		P_D	2.1	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Date				
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	t≦10s, 60	℃ / W
			Steady state,110	
Maximum Thermal Resistance from Junction to Ambient			135	
Maximum Thermal Resistance from Junction to Case [1]		$R_{\theta JC}$	25	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance	g_{fs}	-	6	-	S	V_{DS}=5V, I_D=7A
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0, T_J=25℃
		-	-	5		V_{DS}=24V, V_{GS}=0, T_J=55℃
Drain-Source On-Resistance [3]	$R_{DS(ON)}$	-	-	18	mΩ	V_{GS}=10V, I_D=6A
		-	-	26		V_{GS}=4.5V, I_D=4A
Gate Resistance	R_g	-	2.5	5	Ω	f=1.0MHz
Total Gate Charge	Q_g	-	6	-	nC	V_{DS}=15V V_{GS}=4.5V I_D=7A
Gate-Source Charge	Q_{gs}	-	2.5	-		
Gate-Drain Charge	Q_{gd}	-	2.1	-		
Turn-On Delay Time	$T_{d(on)}$	-	2.4	-	nS	V_{DD}=15V V_{GS}=10V I_D=7A R_G=3.3Ω
Rise Time	T_r	-	7.8	-		
Turn-Off Delay Time	$T_{d(off)}$	-	22	-		
Fall Time	T_f	-	4	-		
Input Capacitance	C_{iss}	-	572	-	pF	V_{DS}=15V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	80	-		
Reverse Transfer Capacitance	C_{rss}	-	65	-		
Source-Drain Diode						
Diode Forward Voltage [3]	V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0, T_J=25℃
Continuous Source Current [1]	I_S	-	-	8.9	A	
Pulsed Source Current [2]	I_{SM}	-	-	37	A	
Reverse Recovery Time	T_{rr}	-	20	-	nS	I_F=7A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	1.1	-	nC	

Notes:

1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper pad.
2. The power dissipation is limited by 150℃ junct ion temperature.
3. Pulse Test: Pulse width≦300μs, duty cycle≦2%.

CHARACTERISTICS CURVE

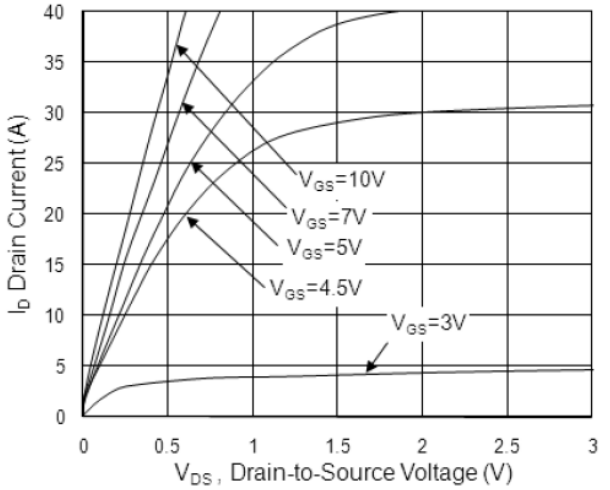


Fig.1 Typical Output Characteristics

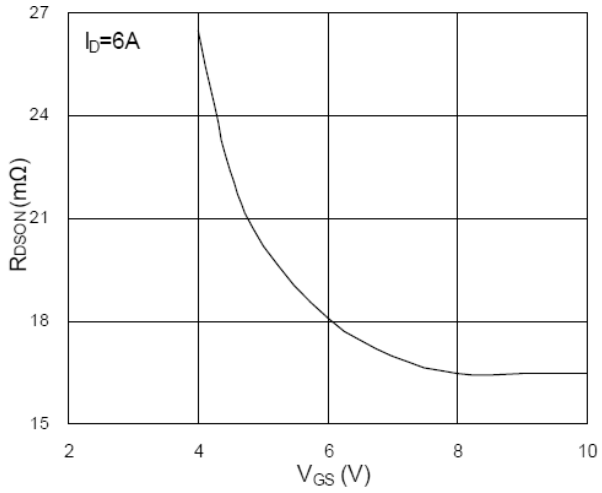


Fig.2 On-Resistance vs. G-S Voltage

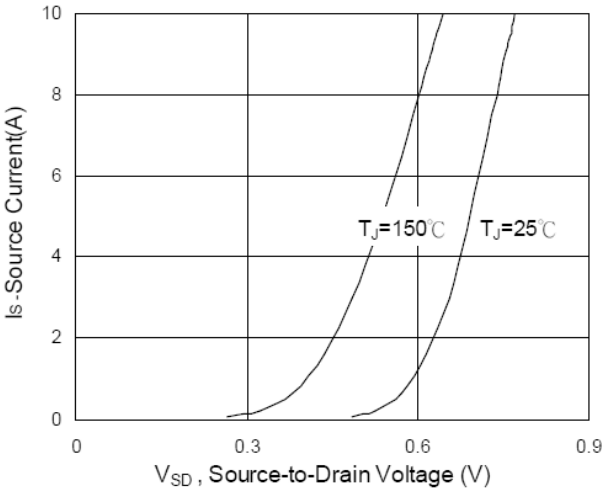


Fig.3 Forward Characteristics Of Reverse

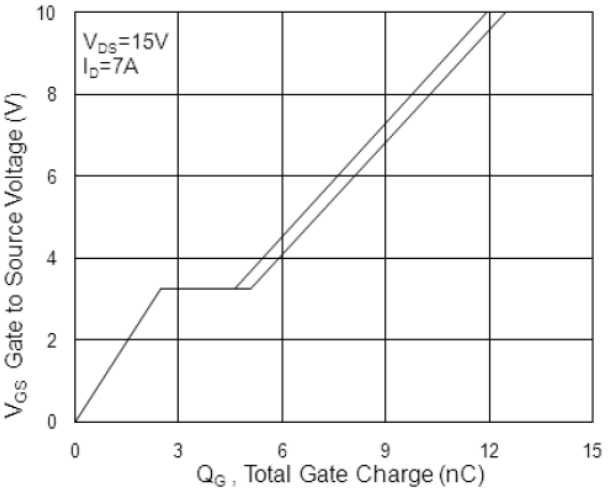


Fig.4 Gate-Charge Characteristics

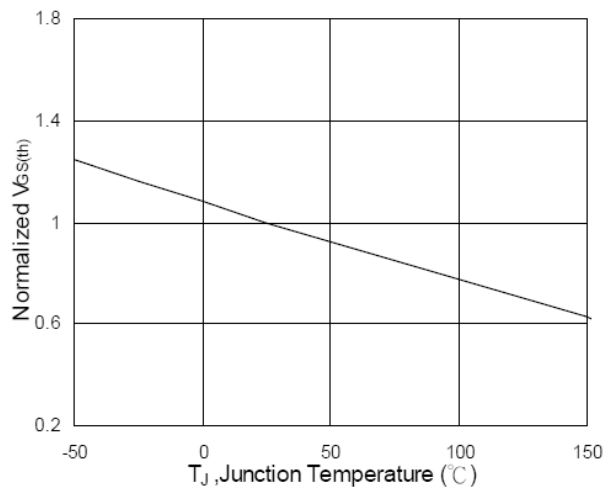


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

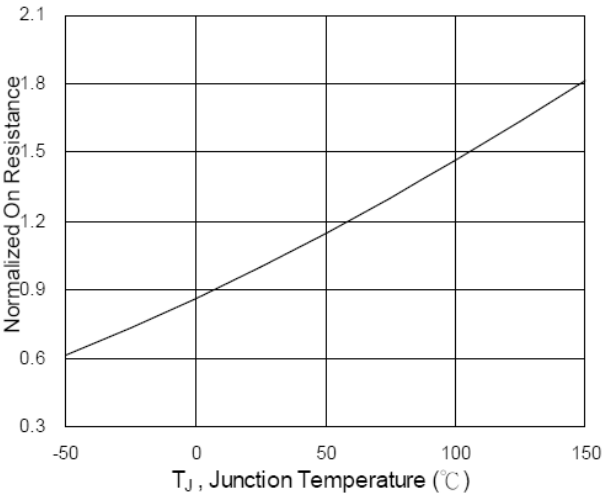


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTICS CURVE

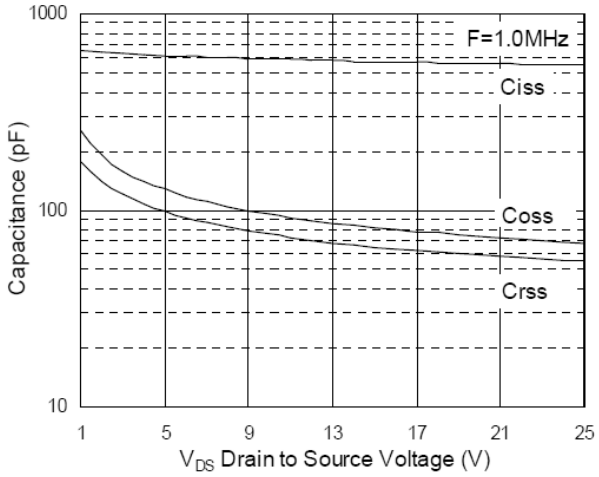


Fig.7 Capacitance

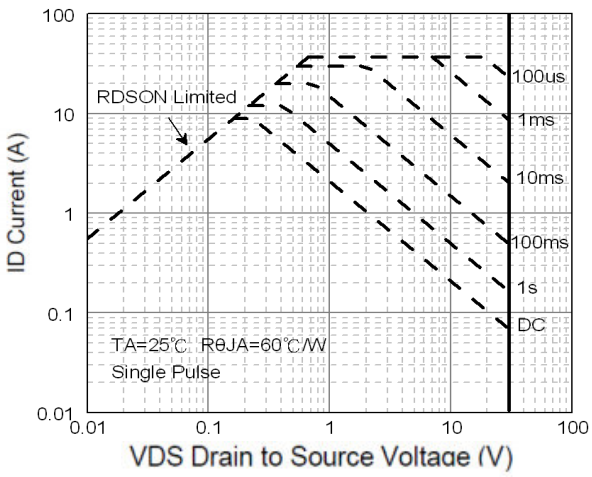


Fig.8 Safe Operating Area

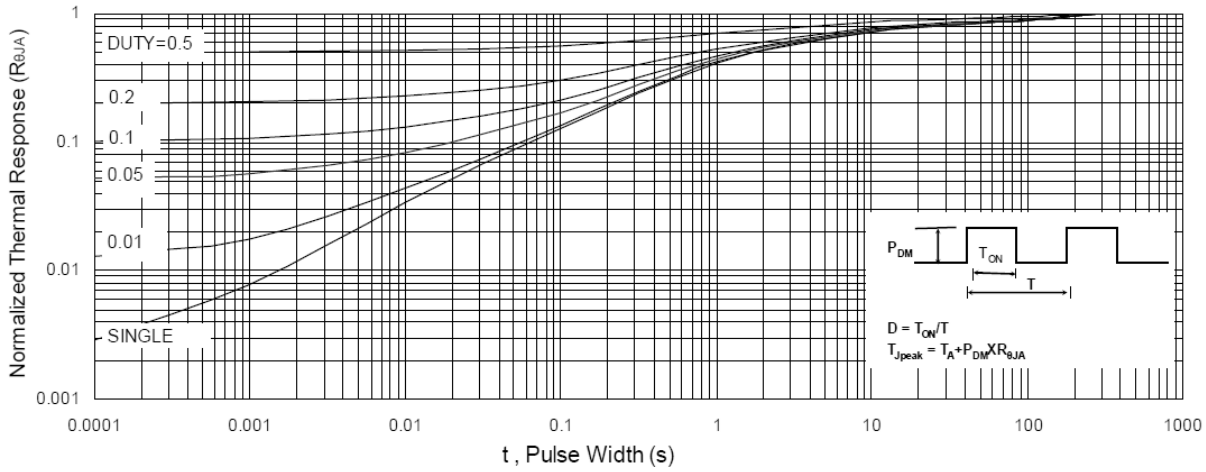


Fig.9 Normalized Maximum Transient Thermal Impedance

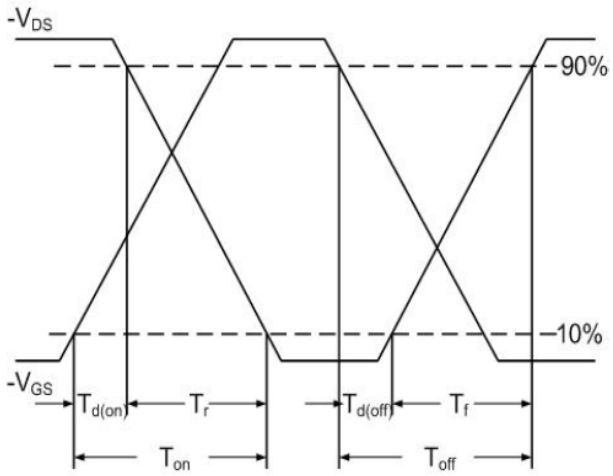


Fig.10 Switching Time Waveform

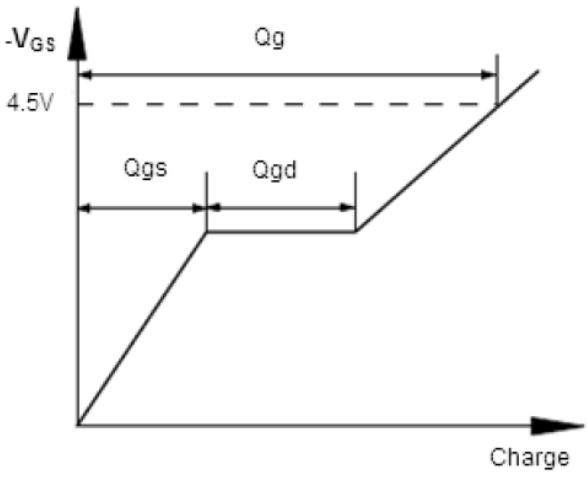


Fig.11 Gate Charge Waveform