YEA SHIN TECHNOLOGY CO., LTD

YS0956ZBB

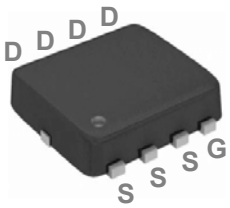
N-Channel Enhancement MOSFET

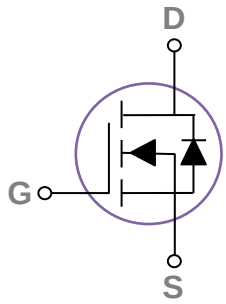
VDS= 100V, ID= 10A

Features

- *100V,10A , RDS(ON)=115mΩ@VGS=10V*
- *Improved dv/dt capability*
- *Fast switching*
- *Green Device Available*

PPAK3x3 Pin Configuration





Applications

- *Notebook*
- *Load Switch*
- *LED applications*

Absolute Maximum Rating Tc=25℃ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (Tc=25℃)	10	A
	Drain Current – Continuous (Tc=100℃)	6.3	A
I_{DM}	Drain Current – Pulsed[1]	40	A
EAS	Single Pulse Avalanche Energy[2]	6	mJ
IAS	Single Pulse Avalanche Current[2]	11	A
P_D	Power Dissipation (Tc=25℃)	29.8	W
	Power Dissipation – Derate above 25℃	0.24	W/℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	62	℃ /W
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	4.2	℃ /W

DEVICE CHARACTERISTICS

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Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	100	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃, I_D=1mA	---	0.09	---	V/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=100V, V_{GS}=0V, T_J=25℃	---	---	1	uA
		V_{DS}=80V, V_{GS}=0V, T_J=125℃	---	---	10	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA

On Characteristics

$R_{DS(ON)}$	Static Drain-source On-Resistance[2]	V_{GS}=10V, I_D=10A	---	90	115	mΩ
		V_{GS}=4.5V, I_D=8A	---	95	120	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS}, I_D=250uA	1.2	1.6	2.5	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	-5	---	mV/℃
gfs	Forward Transconductance	V_{DS}=10V, I_D=10A	---	8.7	---	S

Dynamic and Switching Characteristics

Q_g	Total Gate Charge[3,4]	V_{DS}=50V, V_{GS}=10V, I_D=2A	---	20	40	nC
Q_{gs}	Gate-Source Charge[3,4]		---	3.2	6	
Q_{gd}	Gate-Drain Charge[3,4]		---	3.6	7	
$T_{d(on)}$	Turn-On Delay Time[3,4]	V_{DD}=50V, V_{GS}=10V, R_G=3.3 Ω, I_D=1A	---	18	36	ns
T_r	Rise Time[3,4]		---	4	8	
$T_{d(off)}$	Turn-On Delay Time[3,4]		---	40	80	
T_f	Fall Time[3,4]		---	3	6	
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	1400	2800	pF
C_{oss}	Output Capacitance		---	60	120	
C_{rss}	Reverse Transfer Capacitance		---	35	70	
R_g	Gate Resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz	---	2	4	Ω

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V, Force Current	---	---	10	A
I_{SM}	Pulsed Source Current		---	---	20	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=1A, T_J=25℃	---	---	1	V
t_{rr}	Reverse Recovery Time[3]	V_{GS}=0V,I_S=1A , dI/dt=100A/μs T_J=25℃	---	37	---	ns
Q_{rr}	Reverse Recovery Charge[3]		---	27	---	nC

Note :
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=11A.,R_G=25Ω, Starting T_J=25℃.
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
4. Essentially independent of operating temperature.

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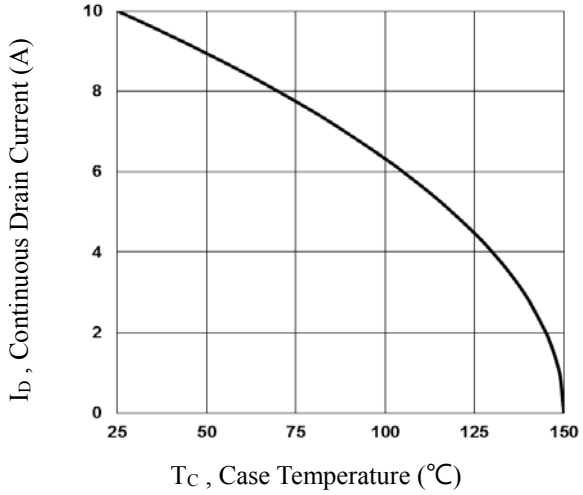

Fig.1 Continuous Drain Current vs. T_C

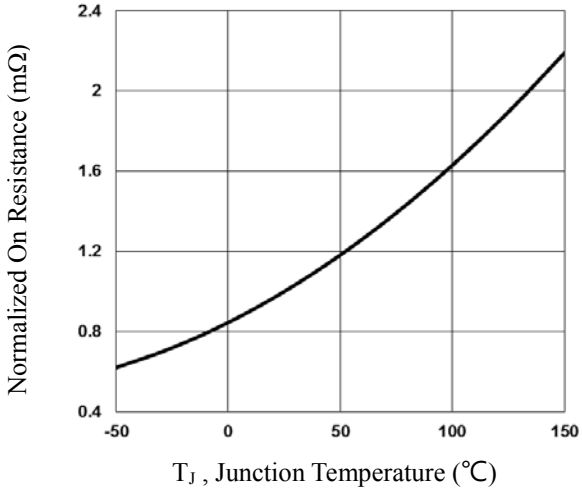

Fig.2 Normalized RDSON vs. T_J

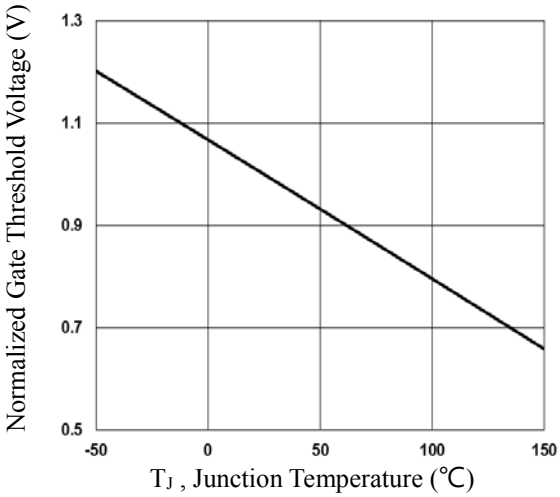

Fig.3 Normalized V_{th} vs. T_J

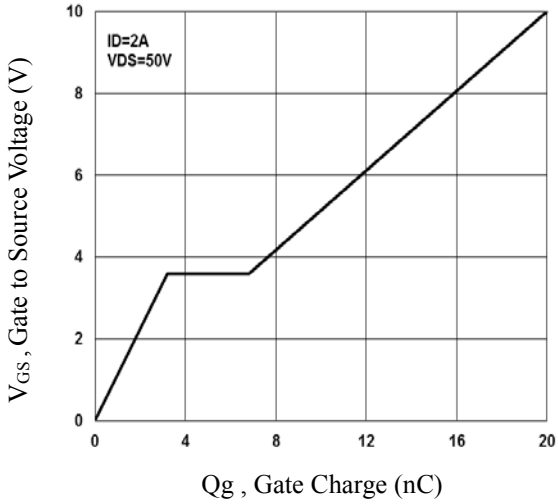

Fig.4 Gate Charge Waveform

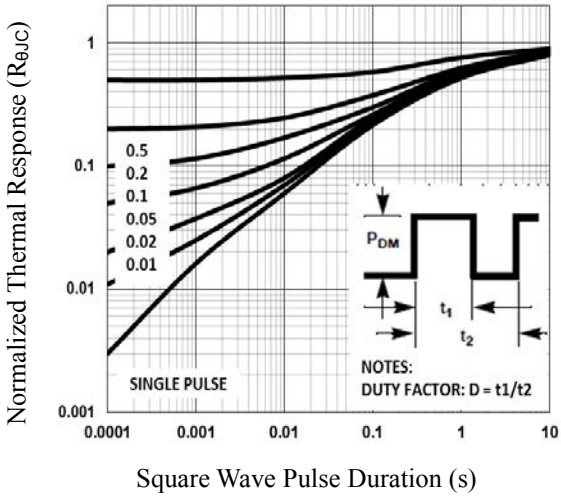

Fig.5 Normalized Transient Impedance

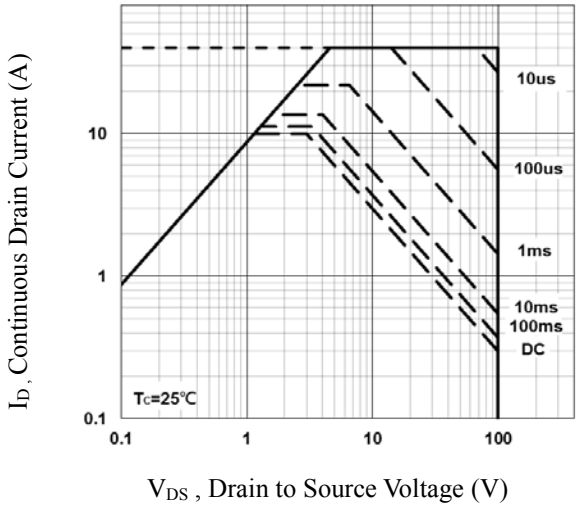

Fig.6 Maximum Safe Operation Area

DEVICE CHARACTERISTICS

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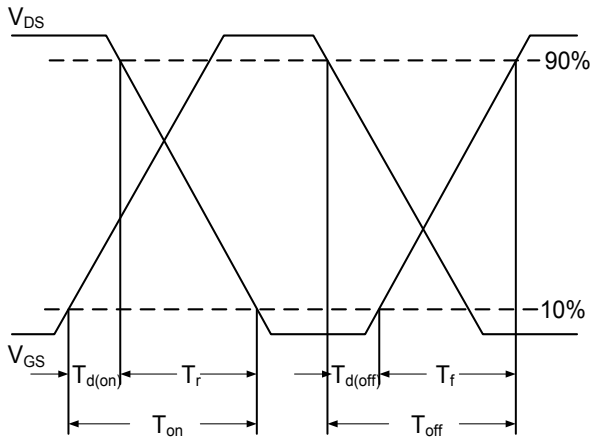


Fig.7 Switching Time Waveform

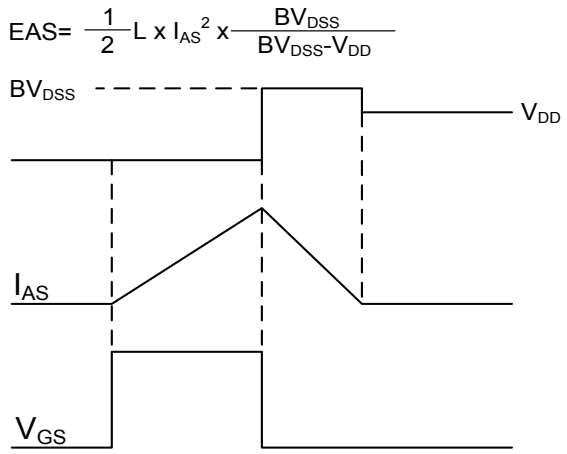
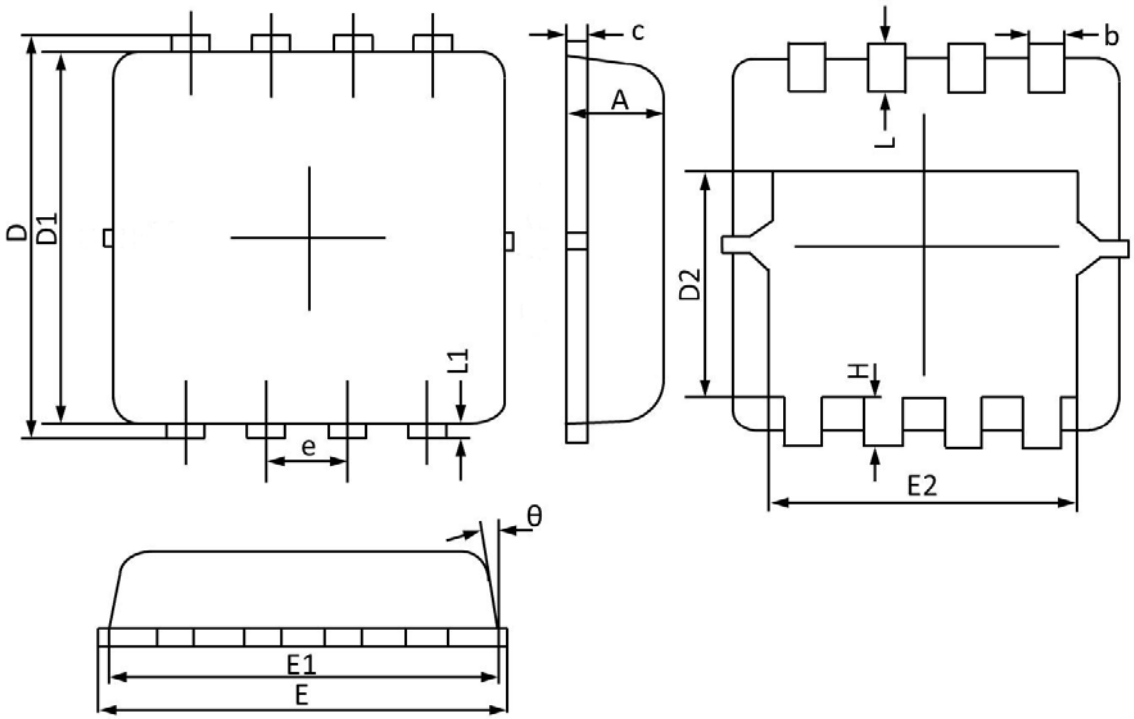


Fig.8 EAS Waveform

PACKAGE OUTLINE & DIMENSIONS

YS0956ZBB

PPAK3x3 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
b	0.240	0.350	0.009	0.014
c	0.100	0.250	0.004	0.010
D	3.050	3.450	0.120	0.136
D1	2.900	3.200	0.114	0.126
D2	1.350	1.850	0.053	0.073
E	3.000	3.400	0.118	0.134
E1	2.900	3.250	0.114	0.128
E2	2.350	2.600	0.093	0.102
e	0.650 BSC		0.026 BSC	
H	0.300	0.500	0.012	0.020
L	0.300	0.500	0.012	0.020
L1	0.070	0.200	0.003	0.008
θ	0°	12°	0°	12°