YEA SHIN TECHNOLOGY CO., LTD

YS6964ZBB

N-Channel Enhancement MOSFET

VDS= 60V, ID= 35A

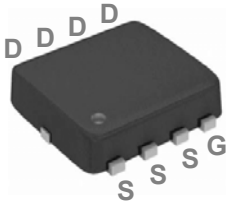
Features

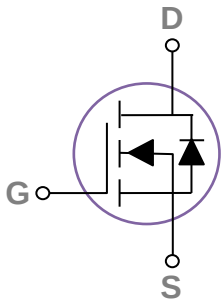
- *60V,35A, RDS(ON) =15mΩ @VGS = 10V*
- *Improved dv/dt capability*
- *Fast switching*
- *100% EAS Guaranteed*
- *Green Device Available*

Applications

- *Motor Drive*
- *Power Tools*
- *LED Lighting*
- *Quick Charger*

PPAK3x3 Pin Configuration





Absolute Maximum Rating T_C=25℃ **unless otherwise noted**

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (T_C=25℃)	35	A
	Drain Current – Continuous (T_C=100℃)	22	A
I_{DM}	Drain Current – Pulsed[1]	140	A
EAS	Single Pulse Avalanche Energy[2]	45	mJ
IAS	Single Pulse Avalanche Current[2]	30	A
P_D	Power Dissipation (T_C=25℃)	46	W
	Power Dissipation – Derate above 25℃	0.37	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	---	2.7	℃/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	60	---	---	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=60V, V_{GS}=0V, T_J=25℃	---	---	1	uA
		V_{DS}=48V, 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[3]	V_{GS}=10V, I_D=10A	---	13	15	mΩ
		V_{GS}=4.5V, I_D=5A	---	16	19	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS}, I_D=250uA	1.2	1.7	2.5	V
gfs	Forward Transconductance	V_{DS}=10V, I_D=3A	---	10	---	S

Dynamic and Switching Characteristics

Q_g	Total Gate Charge[3,4]	V_{DS}=30V, V_{GS}=10V, I_D=10A	---	27	54	nC
Q_{gs}	Gate-Source Charge[3,4]		---	4.2	9	
Q_{gd}	Gate-Drain Charge[3,4]		---	6.2	12	
$T_{d(on)}$	Turn-On Delay Time[3,4]	V_{DD}=15V, V_{GS}=10V, R_G=6Ω, I_D=1A	---	8.6	16	ns
T_r	Rise Time[3,4]		---	24.2	48	
$T_{d(off)}$	Turn-On Delay Time[3,4]		---	32.3	64	
T_f	Fall Time[3,4]		---	7.9	16	
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	1515	3000	pF
C_{oss}	Output Capacitance		---	120	200	
C_{rss}	Reverse Transfer Capacitance		---	76	120	
R_g	Gate Resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz	---	1.8	3.6	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	---	---	35	A
I_{SM}	Pulsed Source Current[3]		---	---	70	A
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_S=1A, T_J=25℃	---	---	1	V
t_{rr}	Reverse Recovery Time	V_{GS}=0V,I_S=-1A , di/dt=100A/μs T_J=25℃	---	19	---	ns
Q_{rr}	Reverse Recovery Charge		---	5	---	nC

Note :
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=30A.,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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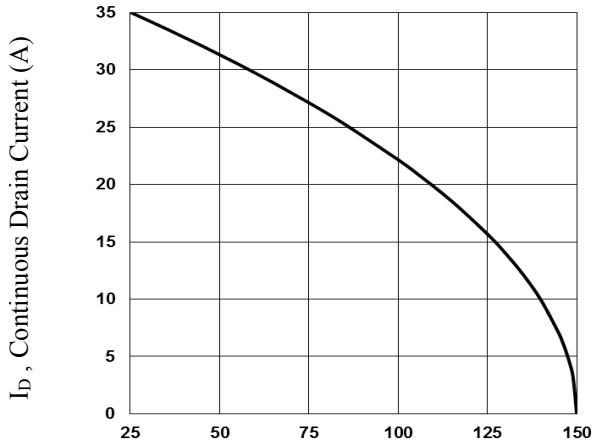

Fig.1 Continuous Drain Current vs. T_C

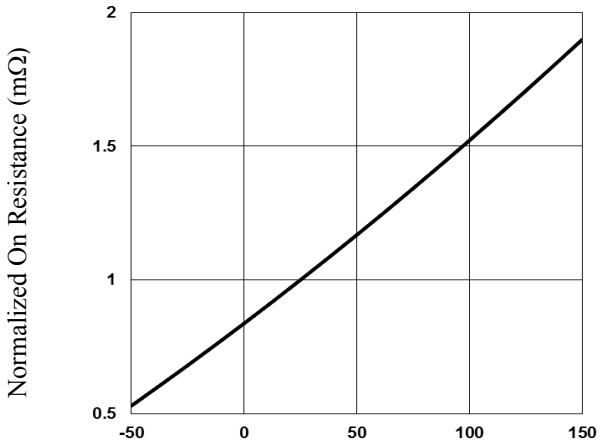

Fig.2 Normalized RDSON vs. T_J

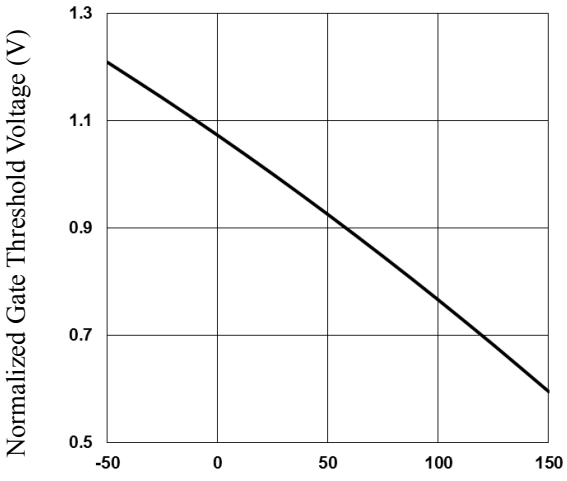

Fig.3 Normalized V_{th} vs. T_J

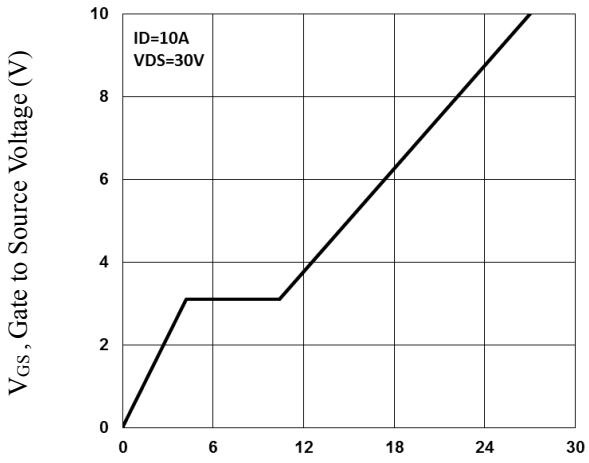

Fig.4 Gate Charge Waveform

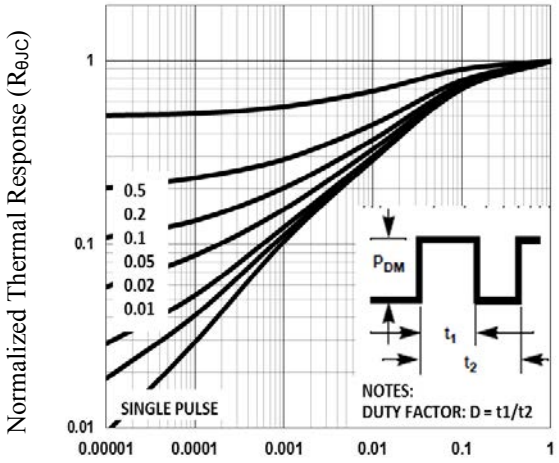

Fig.5 Normalized Transient Impedance

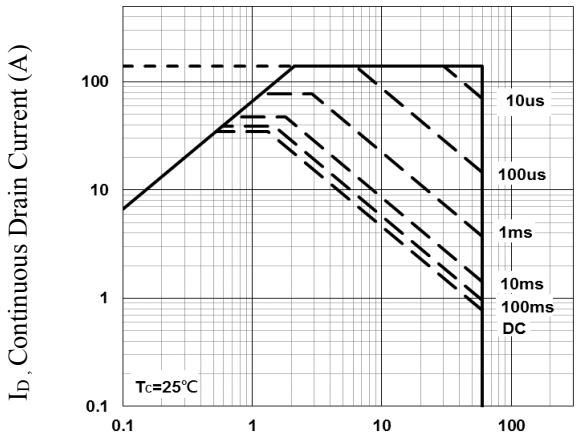

Fig.6 Maximum Safe Operation Area

DEVICE CHARACTERISTICS

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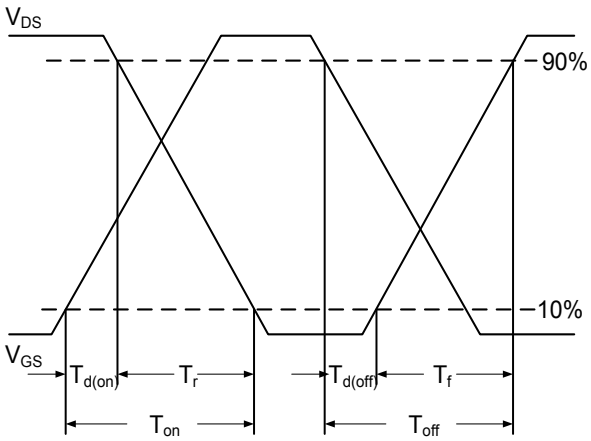


Fig.7 Switching Time Waveform

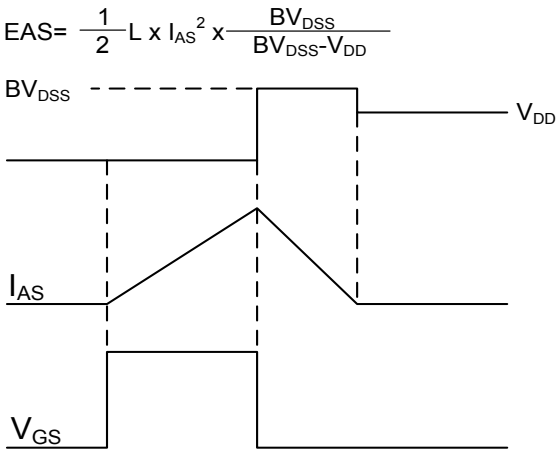
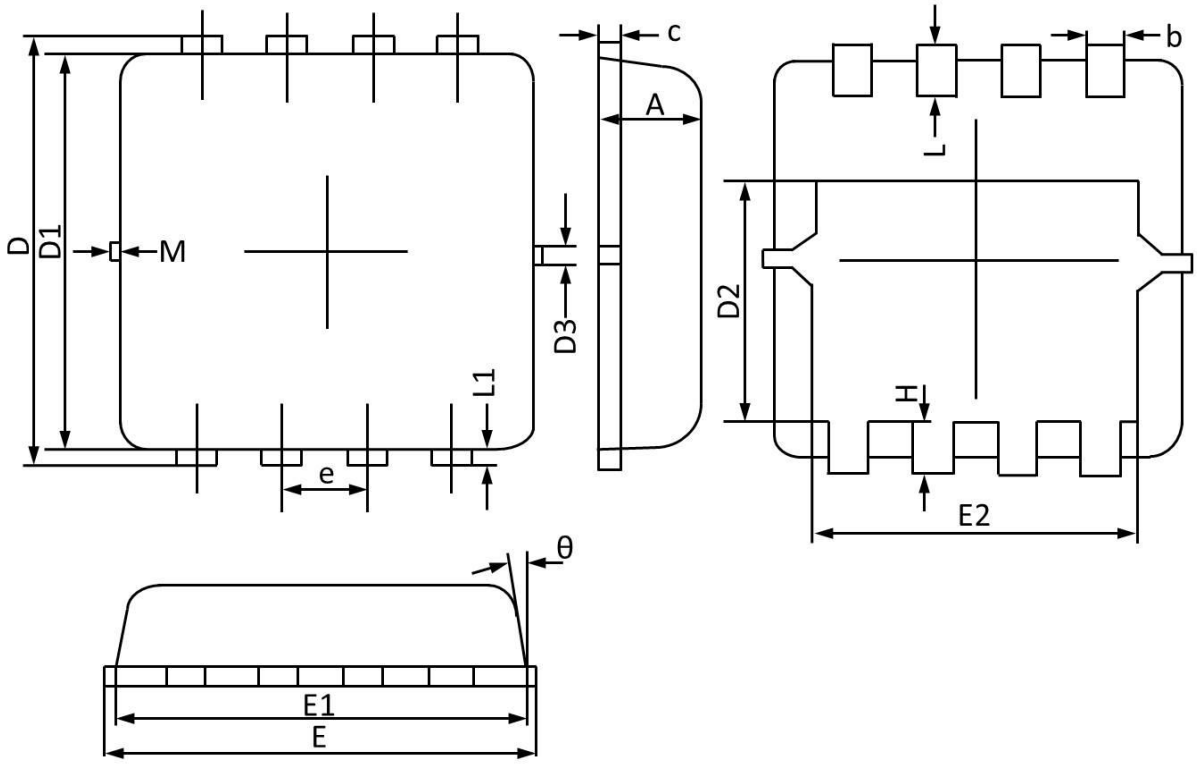


Fig.8 EAS Waveform

PACKAGE OUTLINE & DIMENSIONS

YS6964ZBB

PPAK3x3 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.800	0.028	0.031
b	0.250	0.350	0.010	0.013
c	0.100	0.250	0.004	0.009
D	3.250	3.450	0.128	0.135
D1	3.000	3.200	0.119	0.125
D2	1.780	1.980	0.070	0.077
D3	0.130 REF		0.005 REF	
E	3.200	3.400	0.126	0.133
E1	3.000	3.200	0.119	0.125
E2	2.390	2.590	0.094	0.102
e	0.650 BSC		0.026 BSC	
H	0.300	0.500	0.011	0.019
L	0.300	0.500	0.011	0.019
L1	0.130 REF		0.005 REF	
θ	0°	12°	0°	12°
M	0.150 REF		0.006 REF	