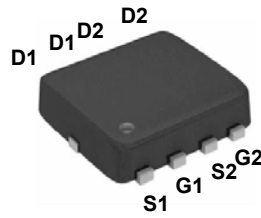
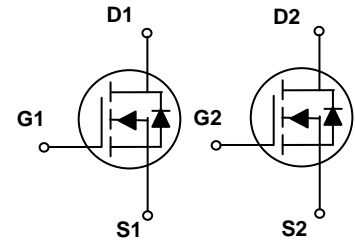


Main Product Characteristics

BV_{DSS}	30V
$R_{DS(ON)}$	13m Ω
I_D	35A



PPAK3X3 Dual 2EP Pin



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFN2336 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings ($T_c=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_c=25^{\circ}C$)	I_D	35	A
Drain Current-Continuous ($T_c=100^{\circ}C$)		22	
Drain Current-Pulsed ¹	I_{DM}	140	A
Single Pulse Avalanche Energy ²	E_{AS}	13	mJ
Single Pulse Avalanche Current ²	I_{AS}	16	A
Power Dissipation ($T_c=25^{\circ}C$)	P_D	27	W
Power Dissipation-Derate above 25 $^{\circ}C$		0.22	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	$^{\circ}C/W$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.6	$^{\circ}C/W$
Operating Junction Temperature Range	T_J	-55 To +150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}C$


Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On/Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
BV_{DSS} Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C , $I_D=1mA$	-	0.04	-	$V/^\circ\text{C}$
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	μA
		$V_{DS}=30V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	10	
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	$V_{GS}=10V, I_D=10A$	-	10	13	m Ω
		$V_{GS}=4.5V, I_D=5A$	-	14	18	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	1.8	2.5	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		-	-4	-	mV/ $^\circ\text{C}$
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=3A$	-	6	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q_g	$V_{DS}=15V, I_D=5A,$ $V_{GS}=4.5V$	-	7.4	12	nC
Gate-Source Charge ^{3,4}	Q_{gs}		-	2.3	5.0	
Gate-Drain Charge ^{3,4}	Q_{gd}		-	3.0	6.0	
Turn-On Delay Time ^{3,4}	$t_{d(on)}$	$V_{DD}=15V, R_G=6\Omega,$ $V_{GS}=10V, I_D=1A$	-	3.8	7.0	nS
Rise Time ^{3,4}	t_r		-	10.0	19	
Turn-Off Delay Time ^{3,4}	$t_{d(off)}$		-	22.0	42	
Fall Time ^{3,4}	t_f		-	6.6	13	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V,$ $F=1MHz$	-	620	900	pF
Output Capacitance	C_{oss}		-	85	125	
Reverse Transfer Capacitance	C_{rss}		-	60	90	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	2.8	5.6	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	35	A
Pulsed Source Current ³	I_{SM}		-	-	70	A
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	-	-	1	V

Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=16A, R_G=25\Omega$, starting $T_J=25^\circ\text{C}$.
3. The datasheet test by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operation temperature.

Typical Electrical and Thermal Characteristic Curves

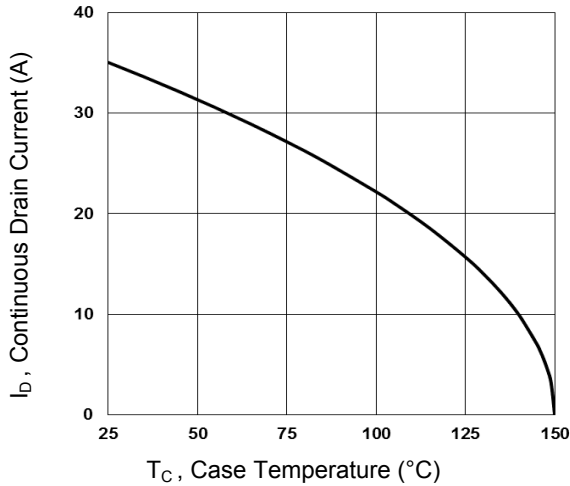


Figure 1. Continuous Drain Current vs. T_C

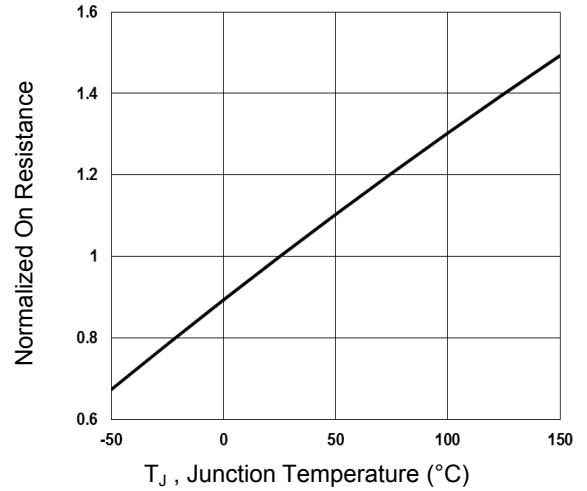


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

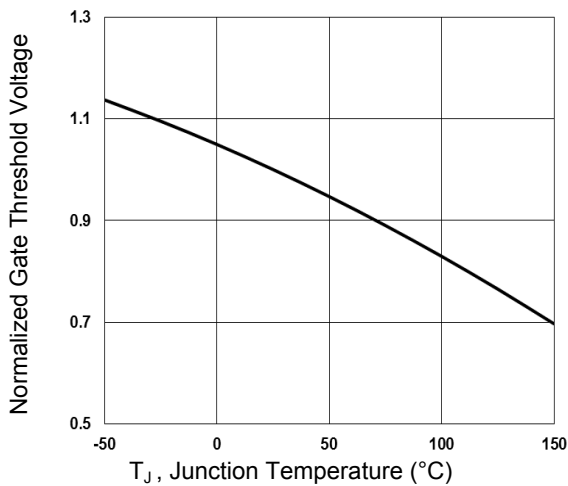


Figure 3. Normalized V_{th} vs. T_J

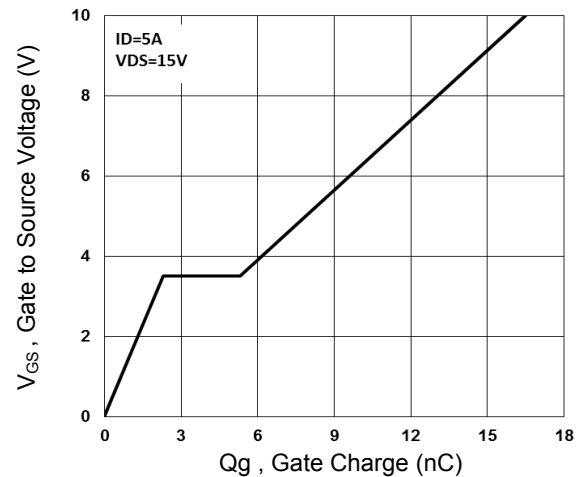


Figure 4. Gate Charge Waveform

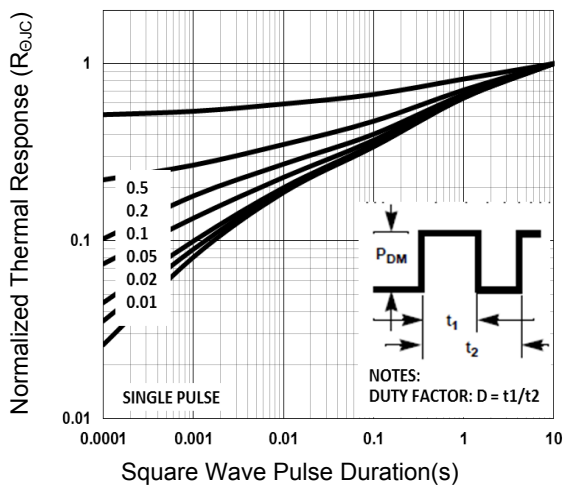


Figure 5. Normalized Transient Impedance

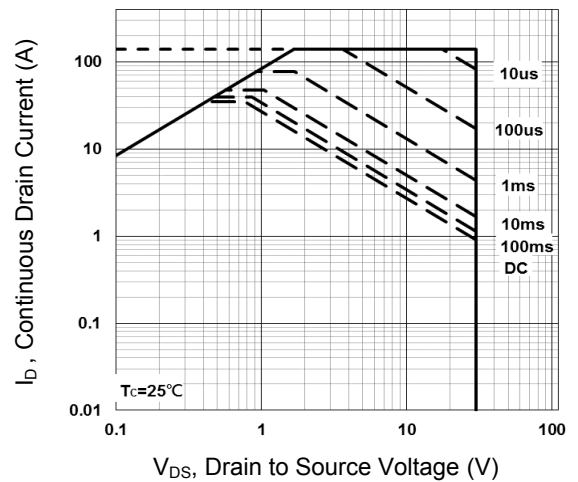


Figure 6. Maximum Safe Operation Area

Test Circuit & Waveform

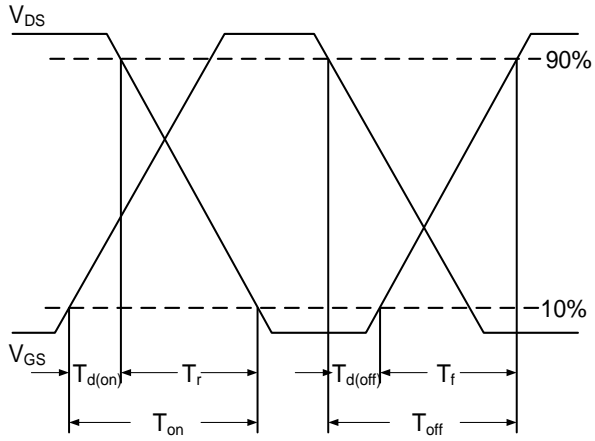


Figure 7. Switching Time Waveform

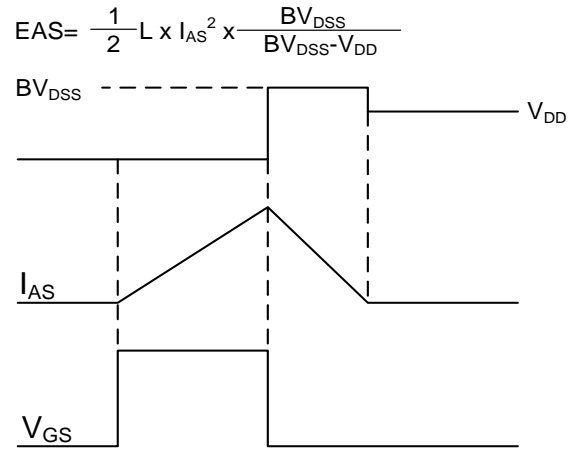
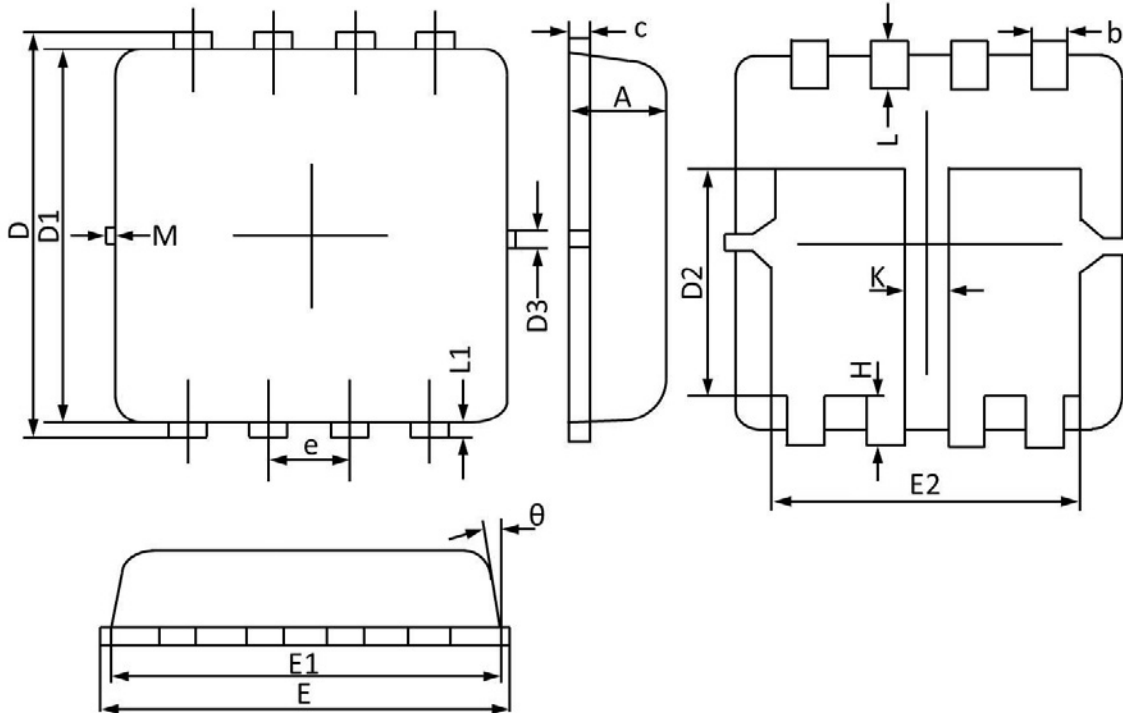


Figure 8. EAS Waveform

Package Outline Dimensions

PPAK3x3 Dual EP



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	
K	0.300 REF		0.012 REF	
theta	0°	12°	0°	12°
M	0.150 REF		0.006 REF	