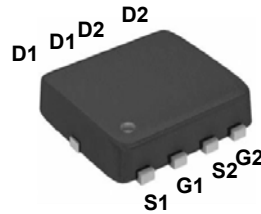
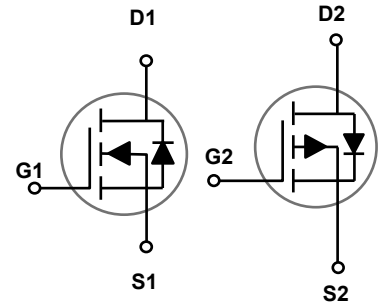


Main Product Characteristics

Polarity	N-Ch	P-Ch
V _{DSS}	30V	-30V
R _{DS(ON)(Max.)}	20mΩ	50mΩ
I _D	12A	-8A



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 GSFN3712 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°C unless otherwise specified)

Parameter	Symbol	Unit	Value	Notes
Drain-Source Voltage (V _{GS} =0V, I _D =0A)	V _{DS}	V	30	
Drain-Source Voltage (V _{GS} =0V, I _D =0A)	V _{SD}	V	-30	
Drain Current (V _{GS} =0V, V _{DS} =30V)	I _{DM}	A	12	Continuous
	I _{DM}	A	12	Pulse
Drain Current (V _{GS} =0V, V _{SD} =-30V)	I _{SM}	A	8	Continuous
	I _{SM}	A	8	Pulse
Gate-Source Voltage (I _D =0A)	V _{GS}	V	±18	
Gate-Drain Voltage (I _D =0A)	V _{GD}	V	±18	
Power Dissipation (T _C =25°C)	P _D	W	1.5	
Power Dissipation (T _C =25°C)	P _D	W	1.5	Pulse
Storage Temperature Range	T _{STG}	°C	-55 to 150	
Operating Temperature Range	T _{OP}	°C	-55 to 150	

Thermal Characteristics

Parameter	Symbol	Unit	Value	Notes
Thermal Resistance (Junction to Case)	θ _{JC}	°C/W	0.5	
Thermal Resistance (Junction to Ambient)	θ _{JA}	°C/W	100	

N-Channel Electrical Characteristics (T_J=25°C unless otherwise specified)

DUfUa YHf	Gna Vc`	7 cbX]hcbg	A Jb"	Hnd"	AU "	I bjh
CZZ7 \ UFUWYf]gh]Vg						
Öiæß EÜj ~ !&ÁÓ^æ á[, } ÁX[æß ^	ÓXóúú	XóúMEXÉÁQMG € CE	HE	EE	EE	X
Öiæß EÜj ~ !&ÁÖ^æ æ ^ÁÖ^ !!^) c	Qúú	XóúMEXÉÁXóúMEXÉÁV#MG »Ö	EE	EE	F	~ CE
		XóúMG XÉÁXóúMEXÉÁV#MG »Ö	EE	EE	F€	~ CE
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Cb7 \ UFUWYf]gh]Vg						
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		XóúM É XÉÁQMG CE	EE	GF	HE	{
Öæß ÁV@^• @ áÁX[æß ^	XóúqæD	XóúMKóúÉÁQMG € CE	F€G	F€É	G€É	X
XóúqæV^ {] ^!æß !^ÁÖ[^~æß) c	ΔXóúqæD		EE	É	EE	{ XÖÖ
Ø !, æáÁV!æß • &] á ~ çæß &	*•	XóúM XÉÁQMG CE	EE	FH	EE	Ü
8 nbUa]WUbX`Gk]HW]b[`7 \ UFUWYf]gh]Vg						
V[çæßÁÖæß ÁÖQæß ^HÉ	Ü•	XóúMFí XÉÁXóúM É XÉÁQMG CE	EE	I É	í	} Ö
Öæß EÜj ~ !&ÁÖQæß ^HÉ	Ü••		EE	F	FÉ	
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V` !) EÜ) ÁÖ^ æß ÁVq ^HÉ	Vaq)D	XóúMFí XÉÁXóúMEXÉÁÜóM É ÁQMFCE	EE	G€	í	} Ü
Üæß ÁVq ^HÉ	Ví		EE	í ÉG	Fí	
V` !) EÜ ~ ÁÖ^ æß ÁVq ^HÉ	Vaq~D		EE	Fí É	HE	
Øæß ÁVq ^HÉ	V-		EE	I É	J	
Q] ~ óÖæß æææß &	Öæ•	XóúMG XÉÁXóúMEXÉÁQMF P:	EE	Hí	í €€] Ø
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Ü^ç^!•^ÁV!æß • ^!ÁÖæß æææß &	Öí••		EE	HG	íí	
Öæß ÁÜ^• ä çæß &	Ü*	XóúMEXÉÁXóúMEXÉÁQMF P:	EE	H€G	í É	
8 fU]b]Gci fW'8]cXY7 \ UFUWYf]gh]Vg`UbX`AU]a i a `F U]b] g						
Ö[] ç [~ • ÁÜj ~ !&ÁÖ^ !!^) c	Q	XóúMKóúMEXÉÁQMF V#MG »Ö	EE	EE	FG	CE
Ü`]•^áÁÜj ~ !&ÁÖ^ !!^) c	Qr		EE	EE	G	CE
Öq áÁQ !, æáÁX[æß ^	Xúó	XóúMEXÉÁQMF V#MG »Ö	EE	EE	F	X

Note:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=17A, R_G=25Ω, Starting T_J=25°C.
3. The data tested by pulsed, pulse width ≤ 300uS, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

N-Channel Typical Electrical and Thermal Characteristic Curves

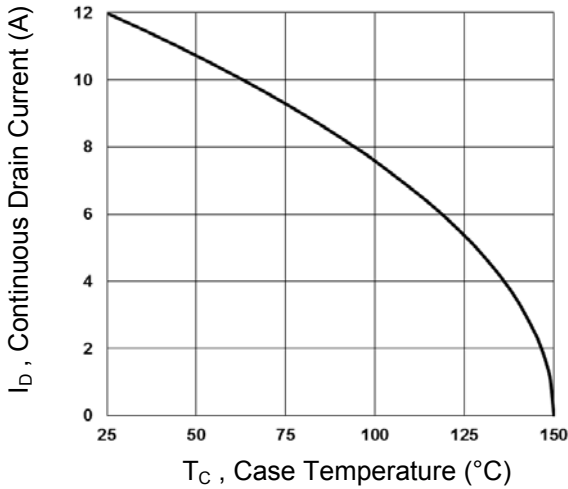


Fig.1 Continuous Drain Current vs. T_C

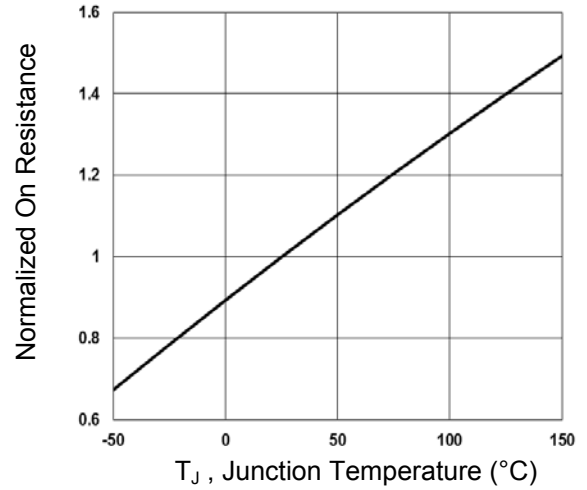


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

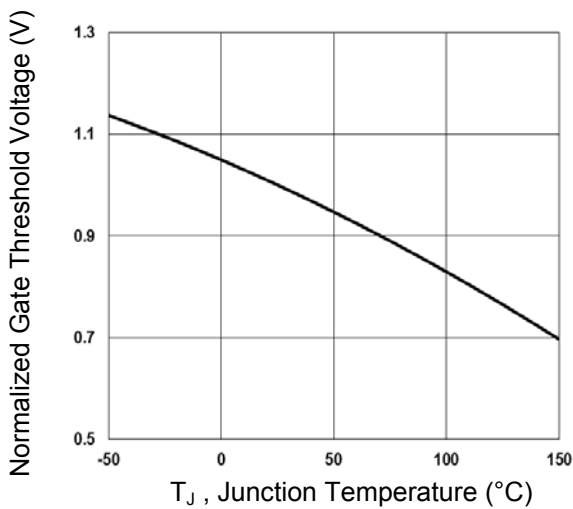


Fig.3 Normalized V_{th} vs. T_J

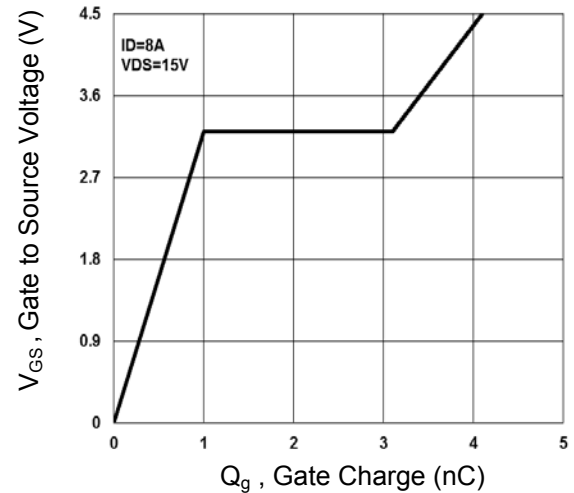


Fig.4 Gate Charge Waveform

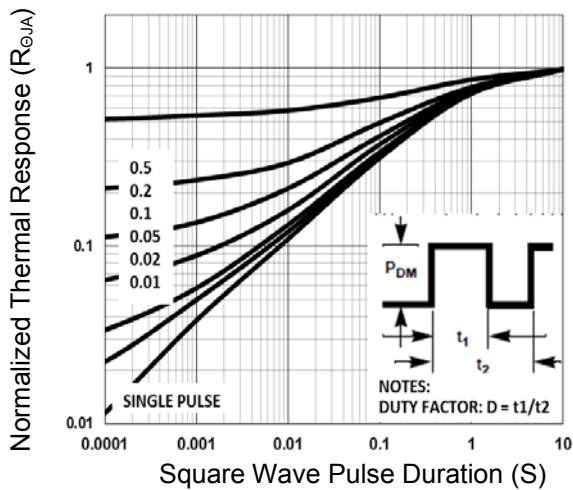


Fig.5 Normalized Transient Response

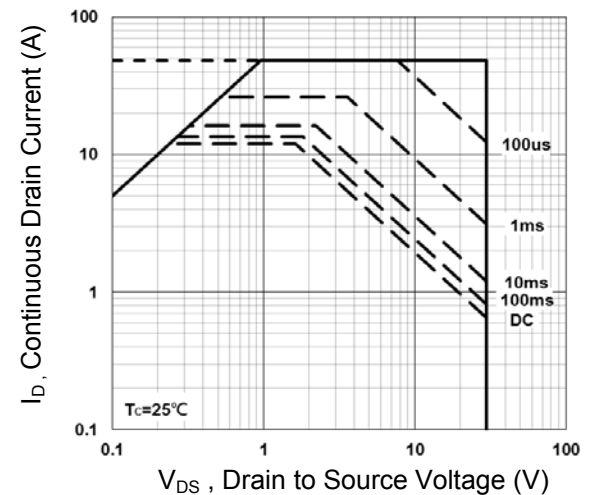


Fig.6 Maximum Safe Operation Area

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

DUFUa YHf	Gna Vc`	7 cbX]hcbg	A Jb"	Hnd"	A U "	I b]h
CZ7 \ UFUWf]gh]Vg						
Ö æß EU] ~ !&ÁÓ^æá , } ÁX æß ^	ÓXóúú	XóúMEXÉQMEÉ € CE	È€	ÈÈ	ÈÈ	X
ÓXóúúAV^ { } ^!æß !^ÁÓ[^-æá } c	ΔÓXóúúEΔVR	Û^A-!^} &^Áq ÁG } ÓÉQMEÉ { CE	ÈÈ	ÈÈH	ÈÈ	XÐÓ
Ö æß EU] ~ !&ÁÓ^æá^ÁÓ^ !!^} c	Qúú	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	ÈÈ	ÈÈ	~ CE
		XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	ÈÈ	ÈÈ	~ CE
Óæß EU] ~ !&ÁÓ^æá^ÁÓ^ !!^} c	Qúú	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	ÈÈ	ÈÈ	} CE
Cb7 \ UFUWf]gh]Vg						
ÛóúúÖ æß EU] ~ !&ÁÓ^æá^ÁÓ^ !!^} c	ÛóúúD	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	I €	í €	{
		XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	î €	î í	{
Óæß ÁV@^ @ áX æß ^	Xóúúæ	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	ÈÈ	ÈÈ	X
XóúúAV^ { } ^!æß !^ÁÓ[^-æá } c	ΔXóúúæ	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	I	ÈÈ	{ XÐÓ
Ø , æáÁV!æß • & á ~ &æß &	* •	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	HÈ	ÈÈ	Û
8 nbUa]WUbX`Gk]HW]b[`7 \ UFUWf]gh]Vg						
V çáÁÓæ^ÁÓ@æ^ ÁÍ È	Û•	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	í È	î	} Ó
Óæß EU] ~ !&ÁÓ@æ^ ÁÍ È	Û••		ÈÈ	G	H	
Óæß EÖ æß ÁÓ@æ^ ÁÍ È	Û•á		ÈÈ	GÈ	I	
V` !} ÈU] ÁÓ^ æß ÁVá ÁÍ È	Váq } D	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	HÈ	î	} Û
Ûá^ÁVá ÁÍ È	Ví		ÈÈ	FÈÈ	G	
V` !} ÈU] ÁÓ^ æß ÁVá ÁÍ È	Váq -D		ÈÈ	G Í	í F	
Øæß ÁVá ÁÍ È	V-		ÈÈ	í Í	FH	
Q] ~ dÓæß æáæß &	Óá•	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	í í €	í F€] Ø
U` q ~ dÓæß æáæß &	Óí••		ÈÈ	í í	í €	
Û^ç^!•^ÁV!æß • ^!ÁÓæß æáæß &	Óí••		ÈÈ	I €	í €	
8 fU]b!Gci fW'8]cXY7 \ UFUWf]gh]Vg`UbX`A U]a i a `FU]b] g						
Ó] çá ~ [~ • ÁU] ~ !&ÁÓ^ !!^} c	Q	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	ÈÈ	ÈÈ	CE
Û` •^áÁU] ~ !&ÁÓ^ !!^} c	Qr		ÈÈ	ÈÈ	ÈÈ	CE
Öá á^ÁQ , æáÁX æß ^	Xúó	XóúMEXÉQMEÉVAVMG } Ó	ÈÈ	ÈÈ	ÈÈ	X

- Note:
- Repetitive Rating: Pulsed width limited by maximum junction temperature.
 - $V_{DD}=-25\text{V}$, $V_{GS}=-10\text{V}$, $L=0.1\text{mH}$, $I_{AS}=-10\text{A}$, $R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$.
 - Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
 - Essentially independent of operating temperature.

P-Channel Typical Electrical and Thermal Characteristic Curves

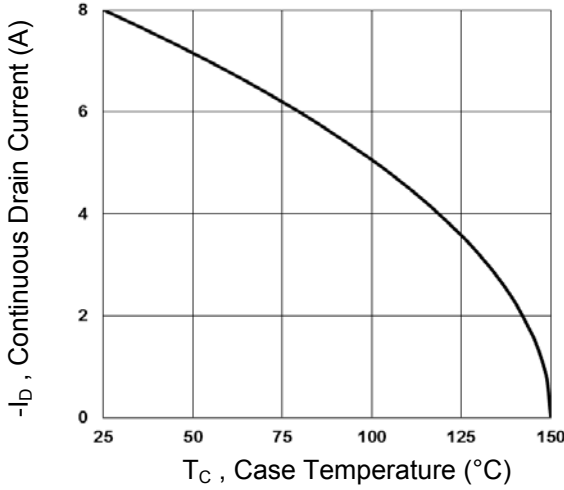


Fig.1 Continuous Drain Current vs. T_c

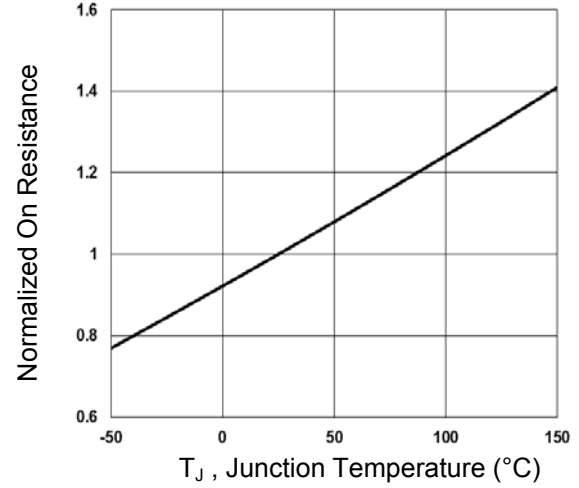


Fig.2 Normalized $R_{DS(ON)}$ vs. T_j

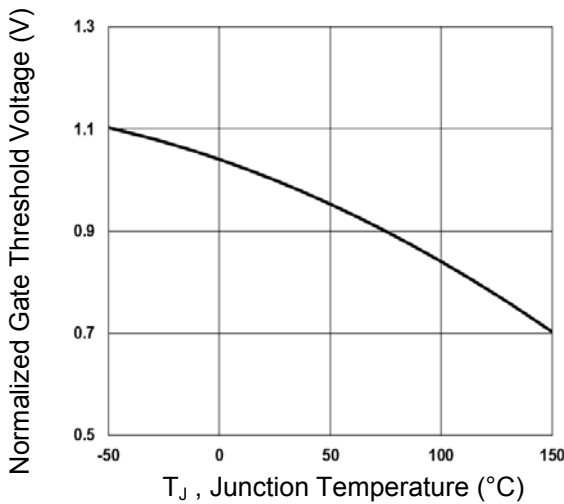


Fig.3 Normalized V_{th} vs. T_j

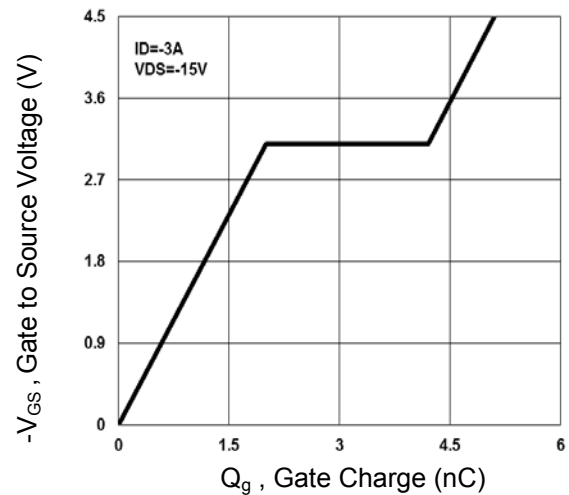


Fig.4 Gate Charge Waveform

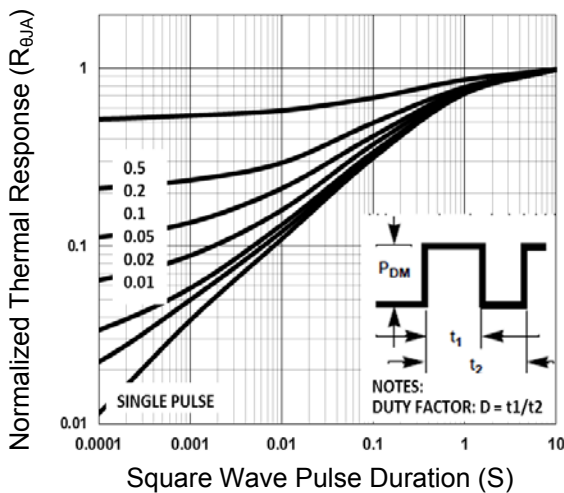


Fig.5 Normalized Transient Impedance

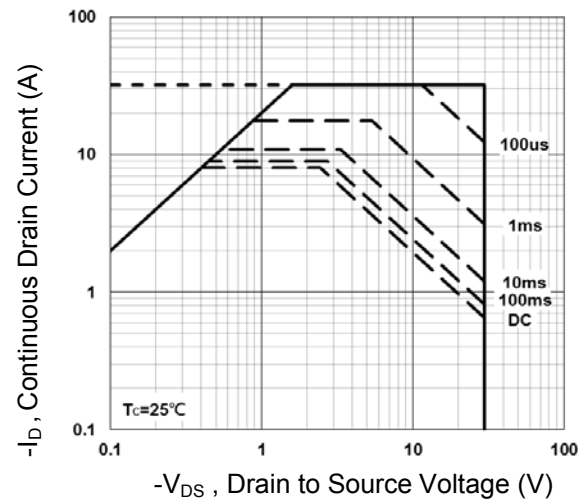
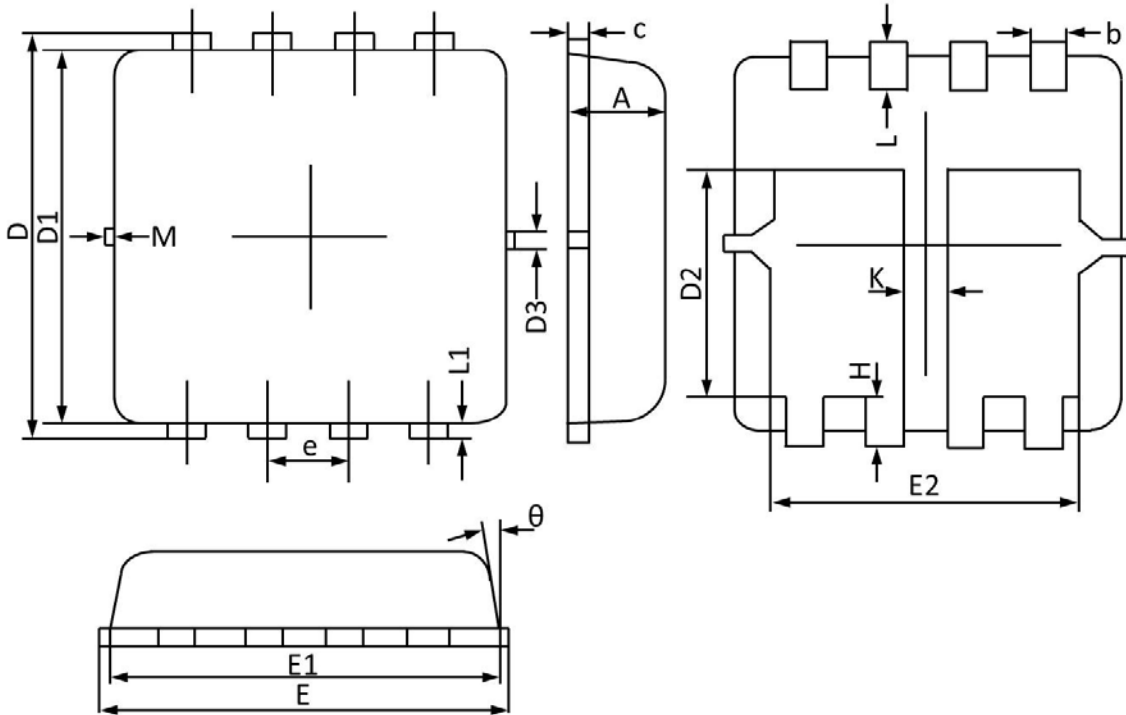


Fig.6 Maximum Safe Operation Area

Package Outline Dimensions

PPAK3X3 Dual 2EP Pin



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	
θ	0°	12°	0°	12°
M	0.150 REF		0.006 REF	