● General Decription

The ZMS800N10D combines advanced SGT MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

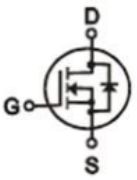
● Features

- ■ Advance high cell density Trench technology
- ■Low $R_{DS(ON)}$ to minimize conductive loss
- ■Low Gate Charge for fast switching
- ■Low Thermal resistance

●Application

- ■SMPS 2nd Synchronous Rectifier
- ■BLDC Motor driver

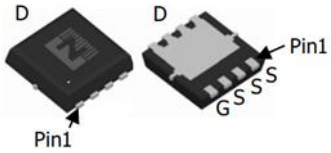
● Product Summary



V_{DS} =100V

$R_{DS(ON)}$ =85mΩ

I_D =9A



RoHS

DFN3*3

●Ordering Information:

Part NO.	ZMS800N10M
Marking	800N10
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

●Absolute Maximum Ratings (T_C =25℃)

Parameter	**Symbol**	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D@TC=25℃	9.0	A
	I_D@TC=75℃	6.8	A
	I_D @TC=100℃	5.6	A
Pulsed Drain Current ①	I_{DM}	27	A
Total Power Dissipation	P_D@TC=25℃	46	W
Total Power Dissipation	P_D@TA=25℃	2.2	W
Operating Junction Temperature	T_J	-55 to 150	℃
Storage Temperature	T_{STG}	-55 to 150	℃

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	2.7	°C/W
Thermal resistance, junction - ambient②	R_{thJA}	-	-	55	°C/W
Soldering temperature, wavesoldering for 10s	T_{sold}	-	-	265	°C

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V, I_D =250uA	100			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =250uA	1.0	1.8	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=100V, V_{GS} =0V			1.0	uA
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS} =0V			±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=8A		85	110	mΩ
		V_{GS}=4.5V, I_D=6A③		95	123	mΩ
Forward Transconductance	g_{FS}	V_{DS} =10V, I_D=4A		2		s
Source-drain voltage	V_{SD}	Is=8A			1.28	V

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V f = 1MHz	-	266	-	pF
Output capacitance	Coss		-	138	-	
Reverse transfer capacitance	Crss		-	25	-	

●Gate Charge characteristics(T_a = 25℃)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Qg	V_{DD} =25V I_D = 8A V_{GS} = 10V	-	4.7	-	nC
Gate - Source charge	Qgs		-	1.2	-	
Gate - Drain charge	Qgd		-	0.64	-	

Fig.1 Power Dissipation Derating Curve

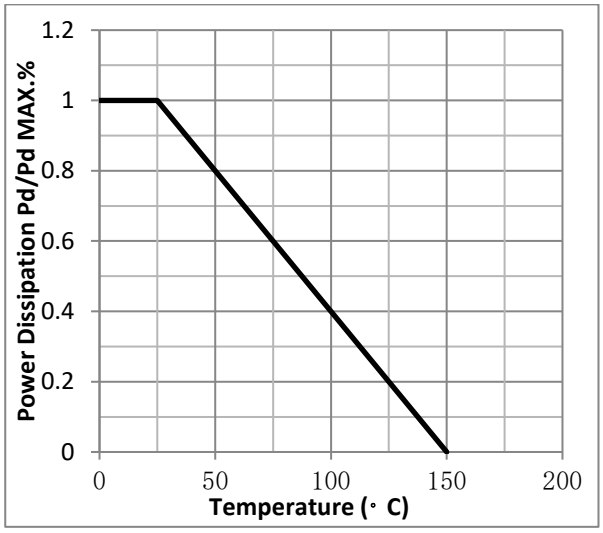


Fig.2 Typical output Characteristics

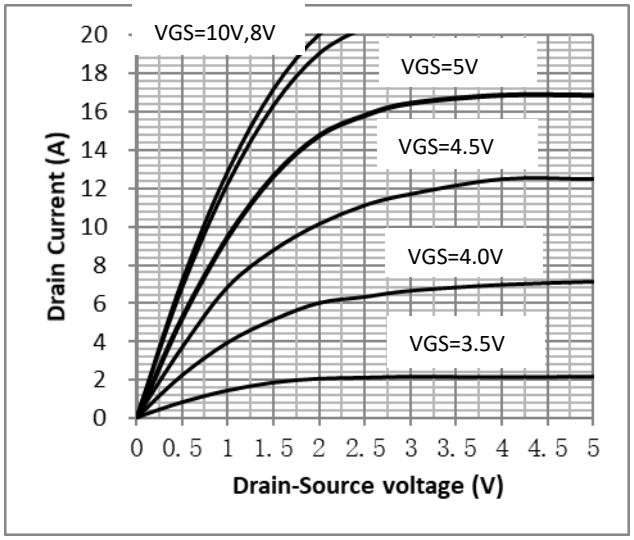


Fig.3 Threshold Voltage V.S Junction Temperature

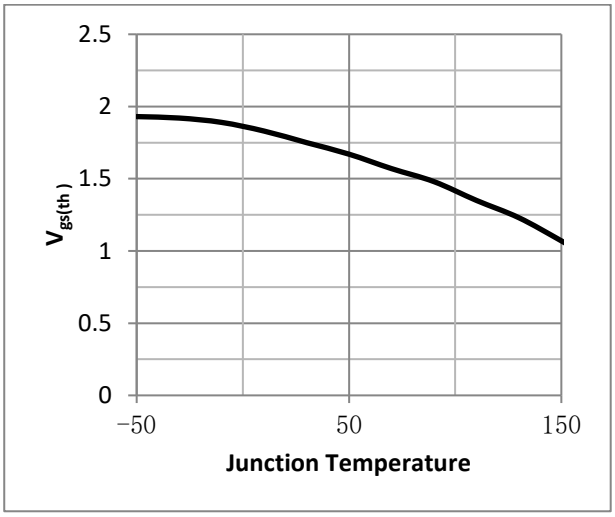


Fig.4 Resistance V.S Drain Current

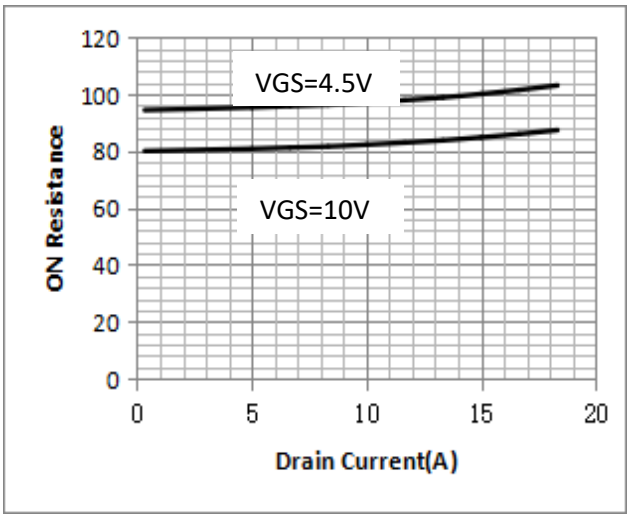


Fig.5 On-Resistance VS Gate Source Voltage

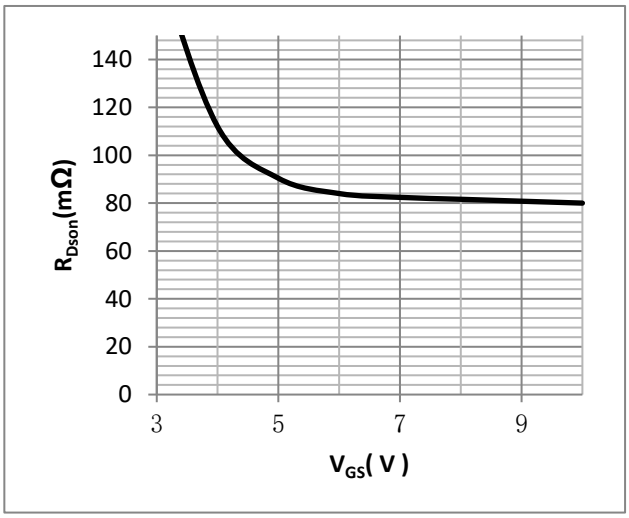


Fig.6 On-Resistance V.S Junction Temperature

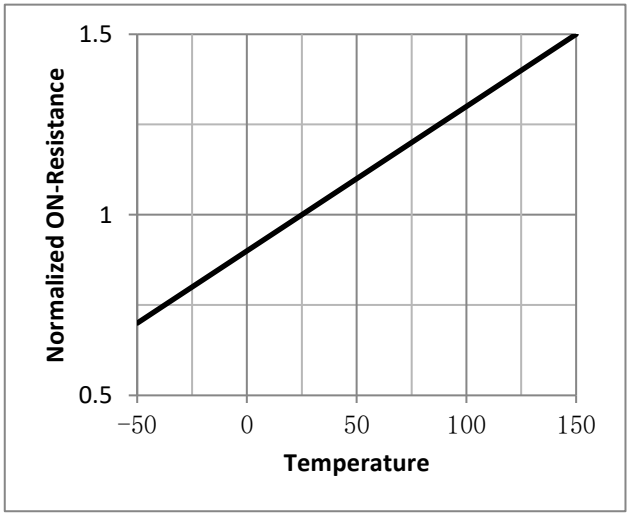


Fig.7 SOA Maximum Safe Operating Area

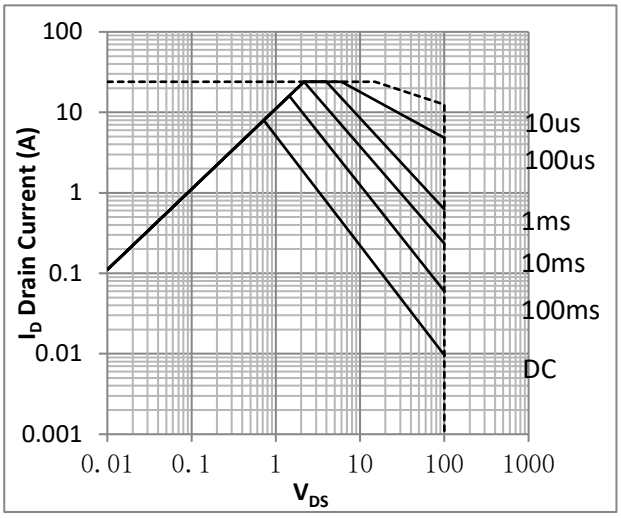


Fig.8 ID-Junction Temperature

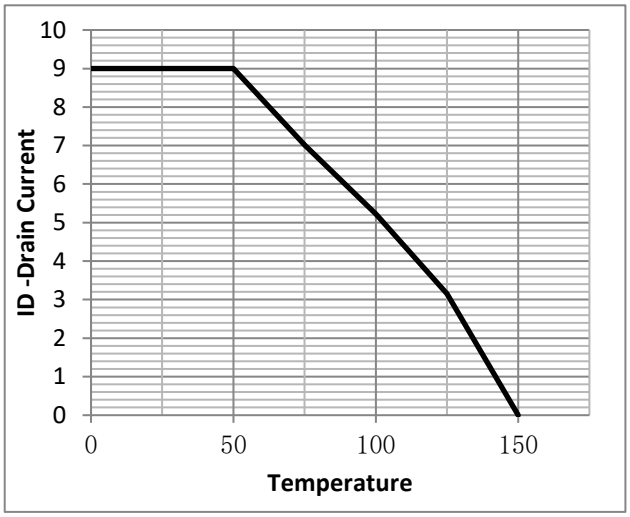


Figure.9 Diode Forward Voltage vs. Current

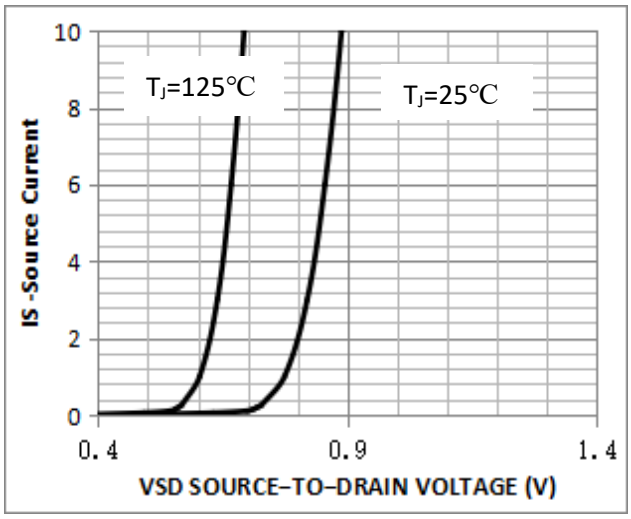


Figure.10 Transfer Characteristics

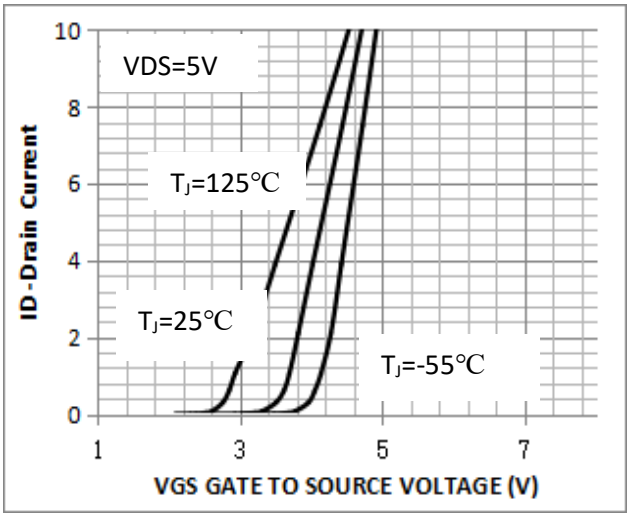


Fig.11 Gate-Charge Characteristics

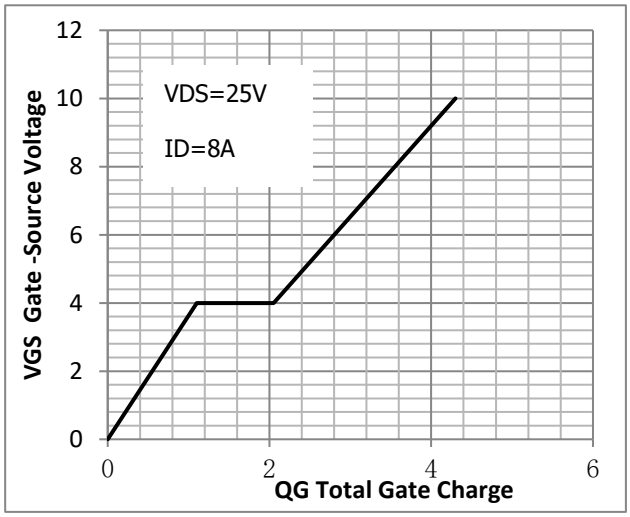


Fig.12 Capacitance Characteristics

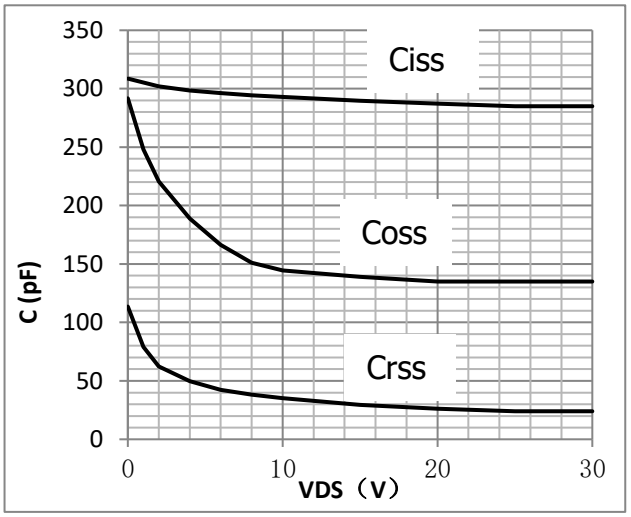


Fig.13 Gate Charge Measurement Circuit

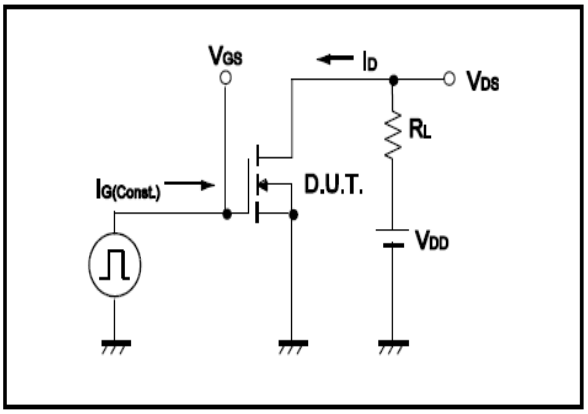


Fig.14 Gate Charge Waveform

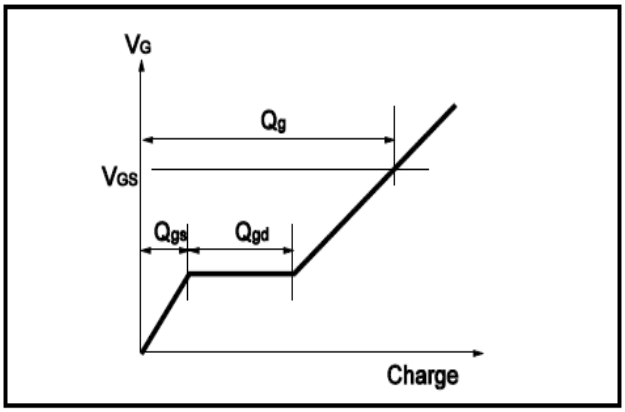


Fig.15 Switching Time Measurement Circuit

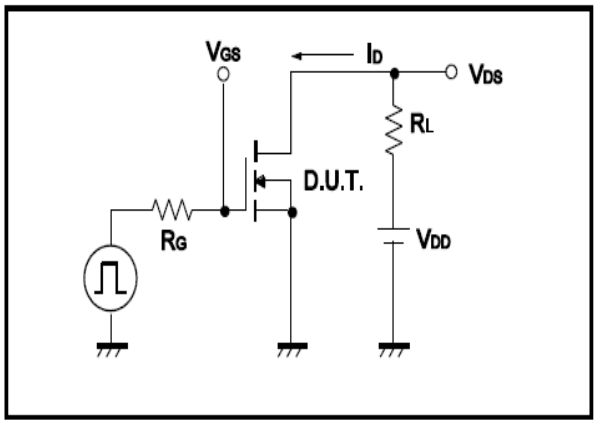


Fig.16 Switching Time Waveform

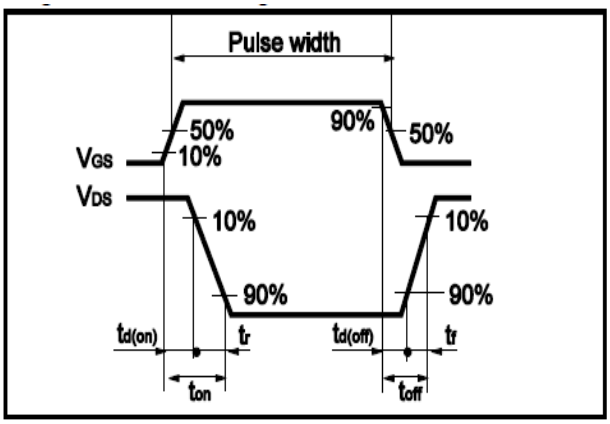


Fig.17 Avalanche Measurement Circuit

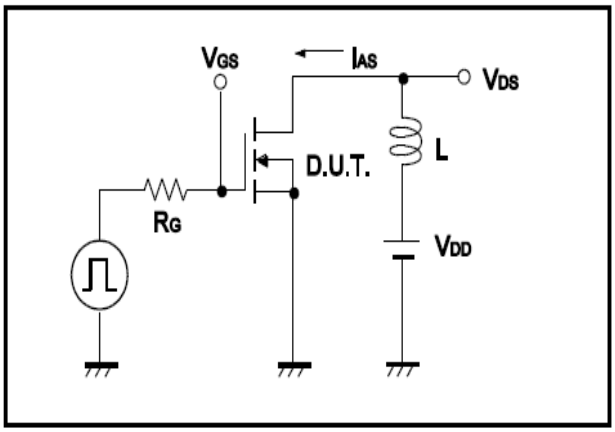
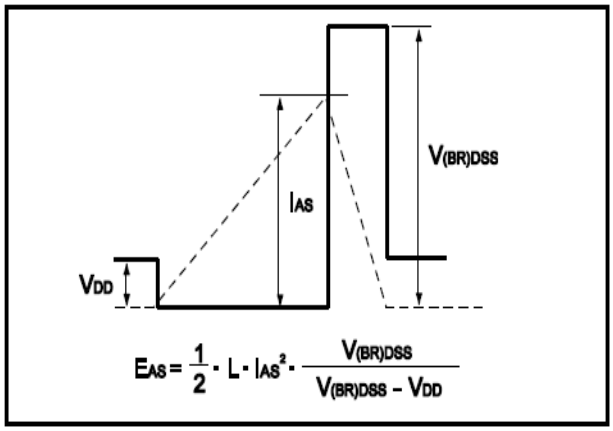
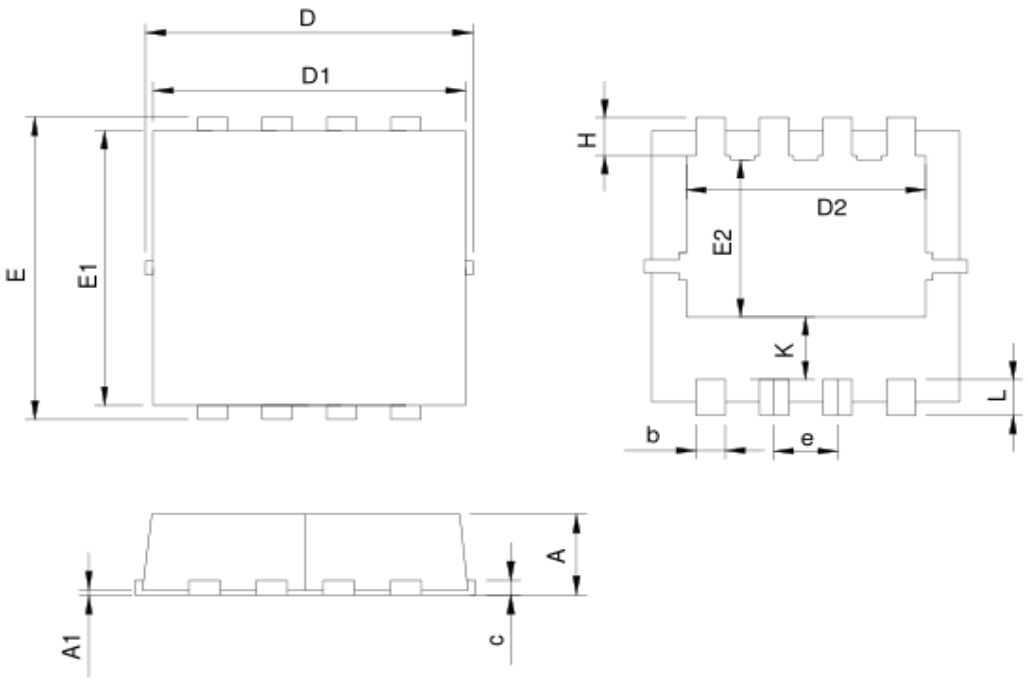


Fig.18 Avalanche Waveform



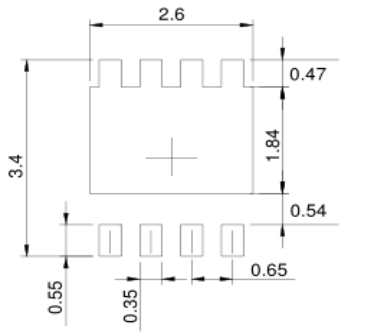
•Dimensions (DFN3*3)

Unit：mm



SYMBOL	DFN3.3x3.3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.14	0.20	0.006	0.008
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.55	0.093	0.100
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.84	0.065	0.072
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



UNIT: mm

Note: ① Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%, Accumulation time ≤50 hours;

② Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate；

③ Vgs≥4.5V is required for practical application.

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