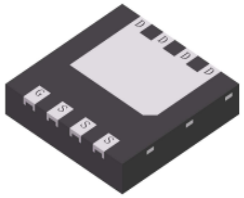
LNB8616DT0AG

N-Channel Power Trench MOSFET



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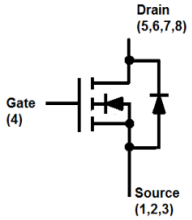


1. FEATURES

- Advanced Package and Silicon combination for low RDS(on) and high efficiency.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- DC-DC Conversion

3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
LNB8616DT0AG	B16	2000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC unless otherwise stated)

Parameter		Symbol	Limits	Unit
Drain−to−Source Voltage		VDSS	100	V
Gate−to−Source Voltage		VGS	±20	V
Continuous Drain Current(Note 1)	TA =25°C	ID	12	A
	TA =70°C		8.5	
Pulsed Drain Current (Note 2)	TA =25°C	IDM	48	
Continuous Drain Current(Note 1)	TC =25°C	ID	42	A
	TC =70°C		33.6	
Pulsed Drain Current (Note 2)	TC =25°C	IDM	168	
Continuous Source Current (Diode Conduction)(Note 1)		IS	3.5	A
Avalanche Current		IAS	14	A
Avalanche energy (L=0.1mH)		EAS	9.8	mJ
Power Dissipation(Note 1)	TA =25°C	PD	3.5	W
	TA =70°C		2	
	TC =25°C		41	
	TC =70°C		26	
Operating Junction Temperature		TJ	−55 ~+150	℃
Storage Temperature Range		Tstg	−55 ~+150	

5. THERMAL CHARACTERISTICS

Parameter		Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	t≤10s	RθJA	35	℃/W
	Steady State		81	
Maximum Junction-to-Case		RθJC	3	℃/W

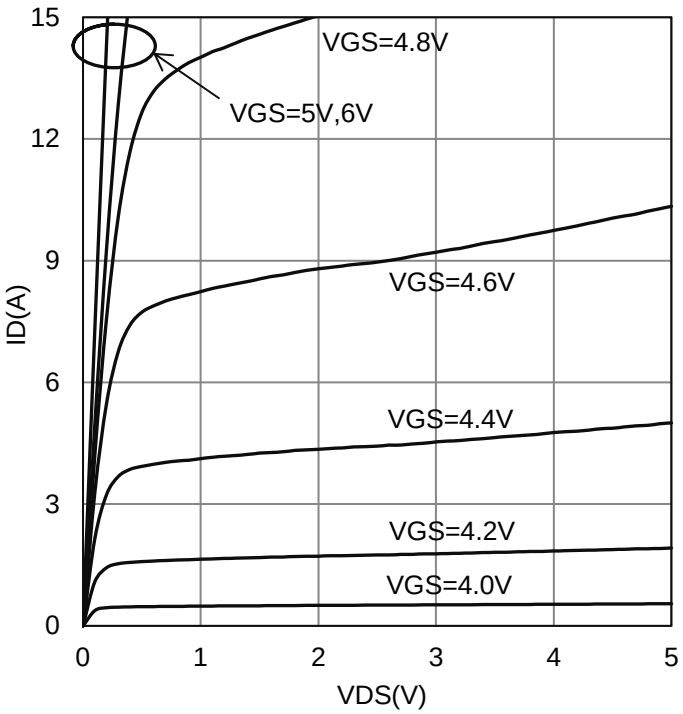
1.Surface mounted on "1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu

2.Pulse width limited by maximum junction temperature.

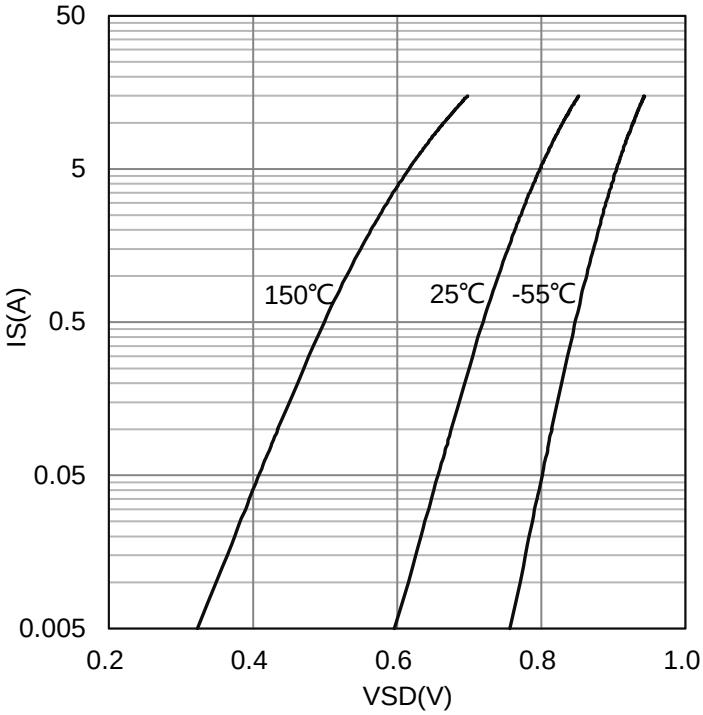
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain to Source Breakdown Voltage (VGS = 0 V, ID = 250 μA)		VDSS	100	-	-	V
Drain-to-Source Leakage Current (VDS = 80 V, VGS = 0 V)		IDSS	-	-	1	μA
Gate-Body leakage current (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	±100	nA
Gate Threshold Voltage (VDS = VGS , ID = 250 μA)		VGS(TH)	2	3	4	V
Drain-to-Source On-Resistance (VGS = 10 V, ID = 12 A) (VGS = 6 V, ID = 8 A) (VGS = 10 V, ID = 8 A, TJ = 125 ° C)		RDS(ON)	- - -	10 14 13	13 19 16	mΩ
Forward Transconductance (VDS = 10V, ID = 13A)		gfs	-	45	-	S
Dynamic						
Total Gate Charge VGS(0 ~5 V)	(ID =13A,VDD =50V)	Qg	-	23.4	-	nC
Total Gate Charge VGS(0 ~10 V)		Qg	-	29.2	-	
Gate to Source Charge		Qgs	-	12.9	-	
Gate to Drain Charge		Qgd	-	6.2	-	
Turn-on Delay Time	(VDD = 50V, ID = 13A, RG = 6 Ω,VGS = 10V)	td(ON)	-	15	-	nS
Rise Time		tr	-	8	-	
Turn-Off Delay Time		td(OFF)	-	23	-	
Fall Time		tf	-	7	-	
Input Capacitance	(VGS = 0V ,VDS = 50V, f = 1MHz)	Ciss	-	1871	-	pF
Output Capacitance		Coss	-	275	-	
Reverse Transfer Capacitance		Crss	-	3.15	-	
Diode Forward Voltage (VGS = 0 V, IS = 2.1 A) (VGS = 0 V, IS = 13 A)		VSD	- -	0.7 0.8	1.2 1.3	V
Reverse Recovery Time (IF = 13 A, di/dt = 100 A/μs)		trr	-	56	90	nS
Reverse Recovery Charge (IF = 13 A, di/dt = 100 A/μs)		Qrr	-	80	118	nC

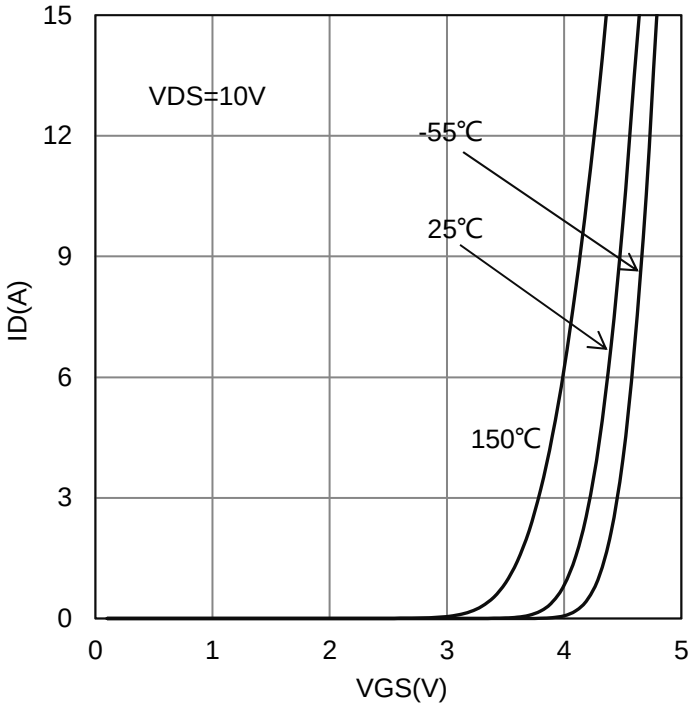
7.ELECTRICAL CHARACTERISTICS CURVES



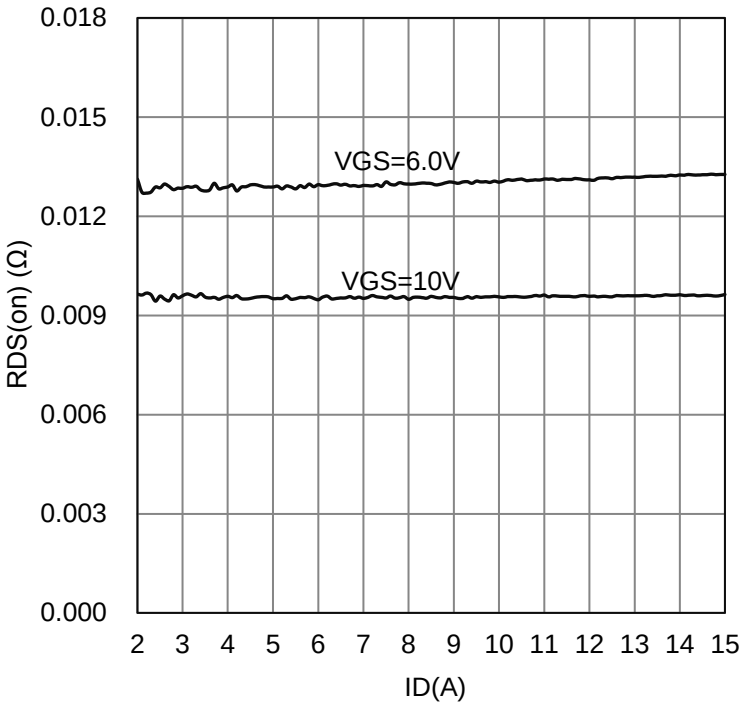
ID vs. VDS



IS vs. VSD

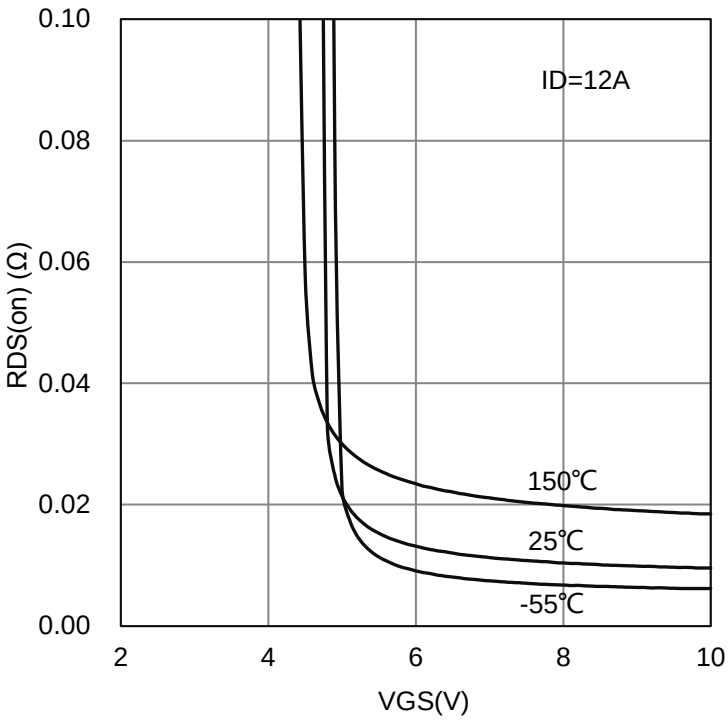


ID vs. VGS

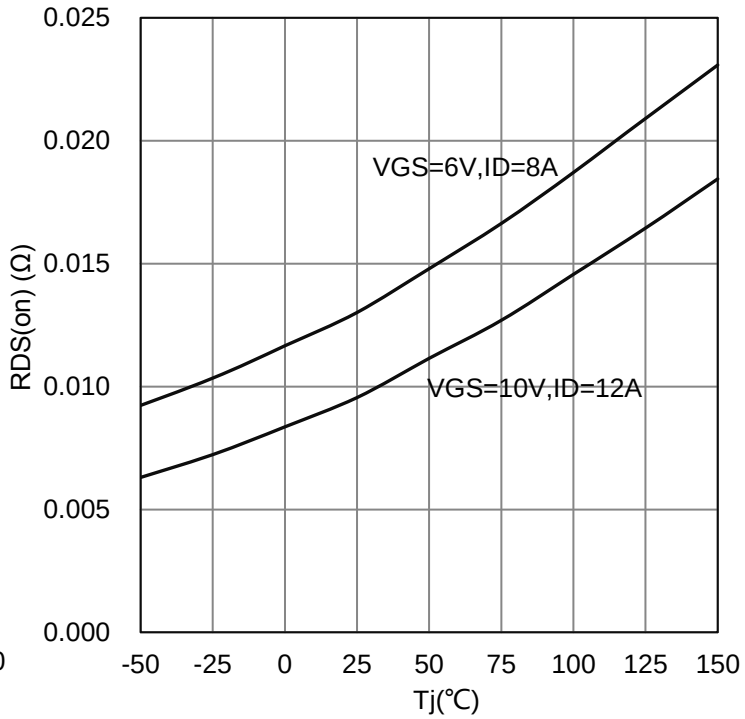


RDS(on) vs. ID

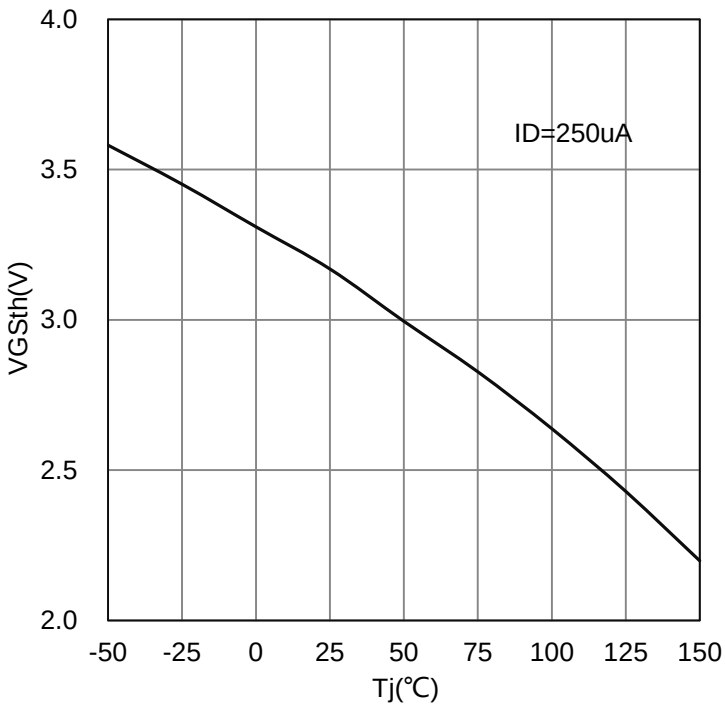
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



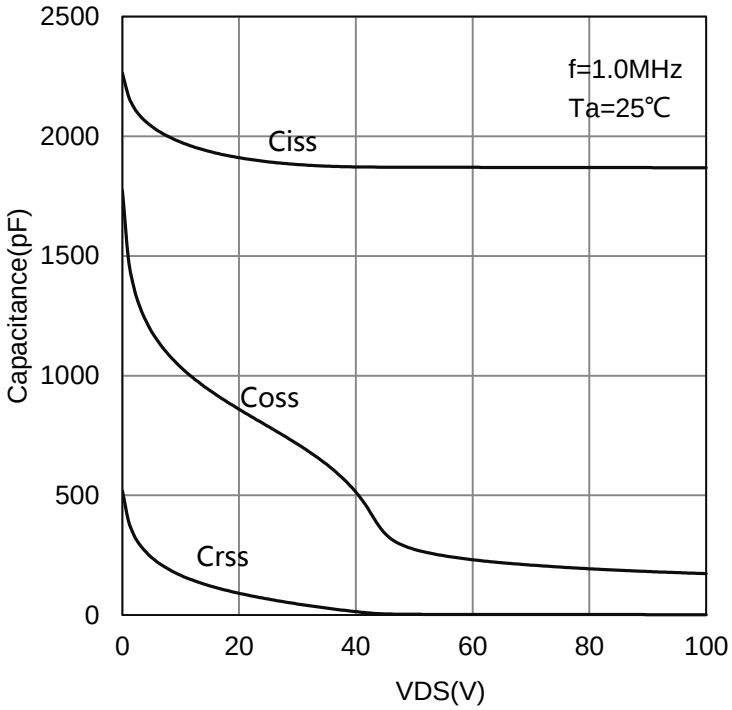
RDS(on) vs. VGS



RDS(on) vs. Tj

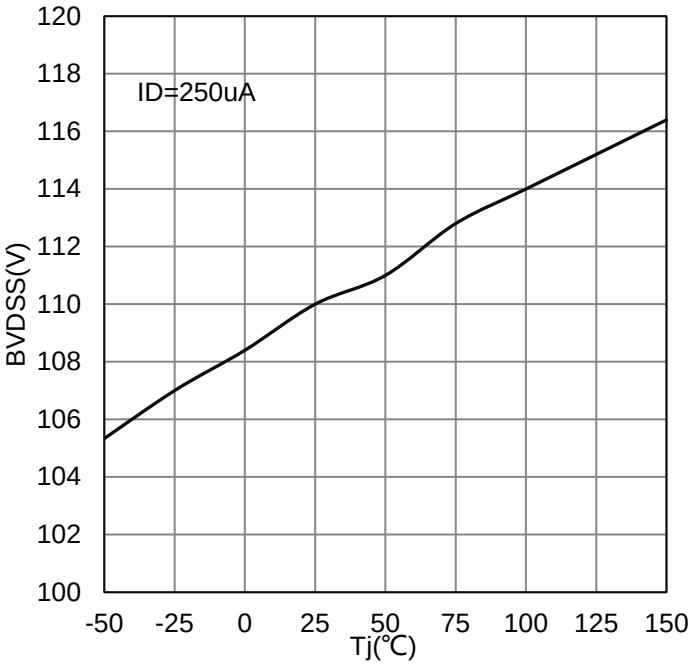


VGSth vs. Tj

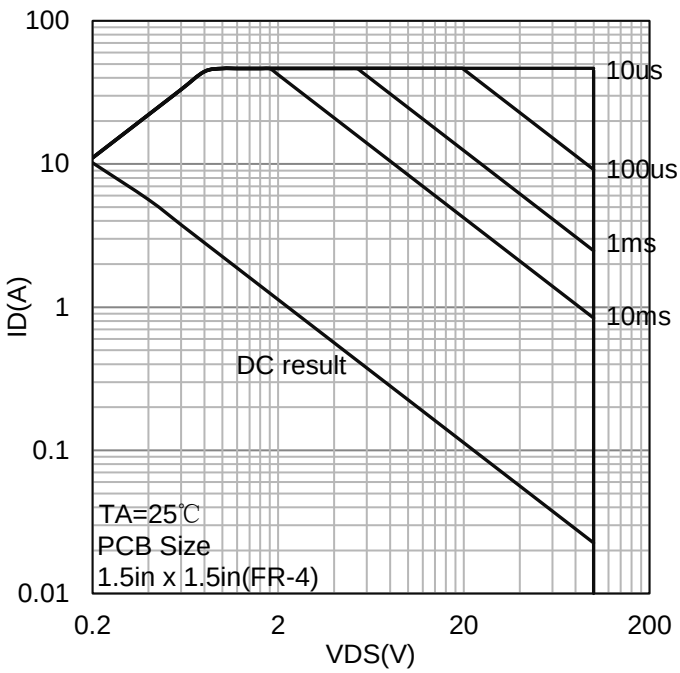


Capacitance

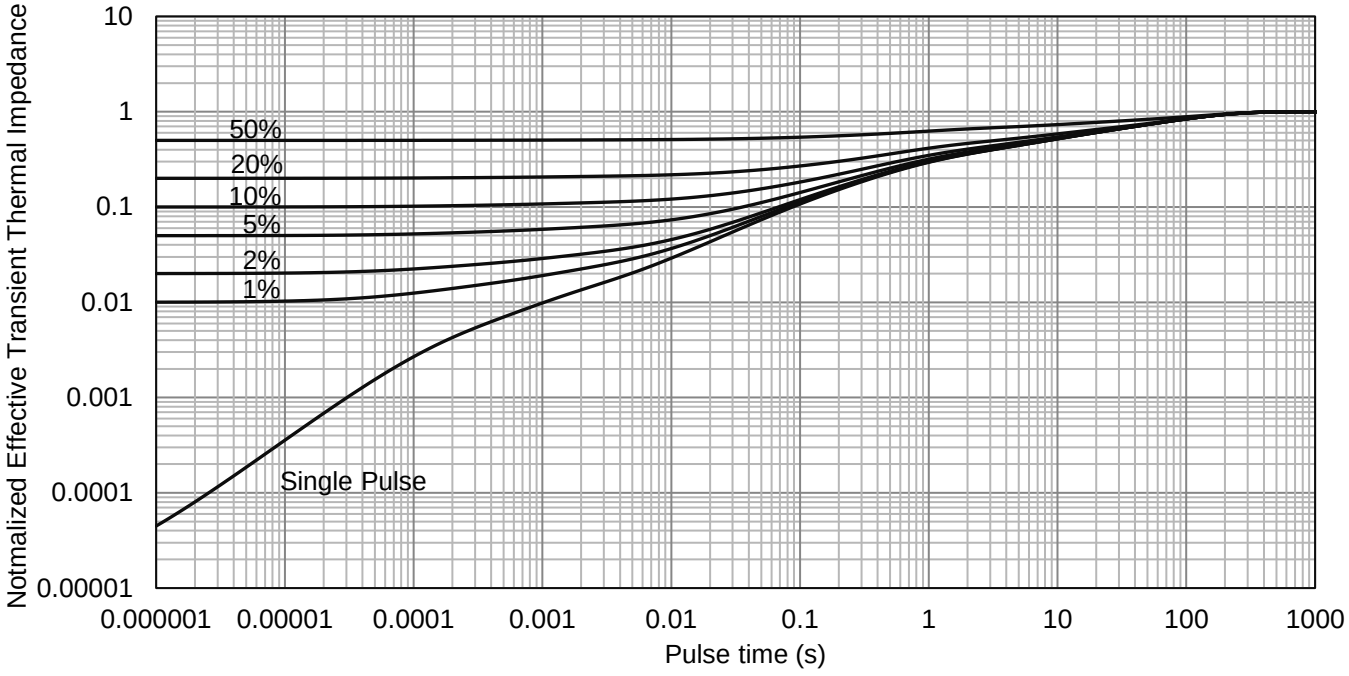
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



BVDSS vs. Tj

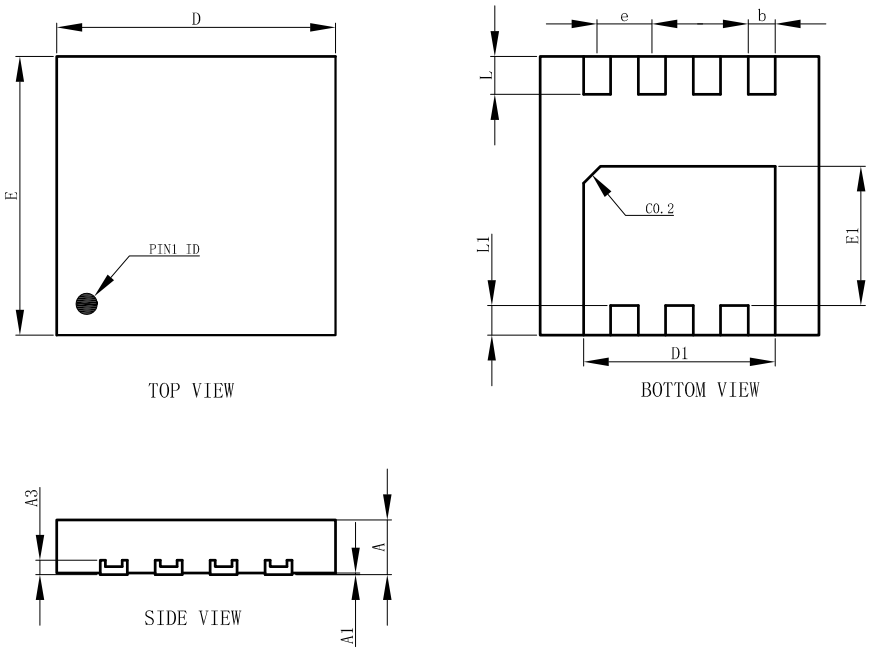


Safe Operating Area



Thermal Response

8.OUTLINE AND DIMENSIONS



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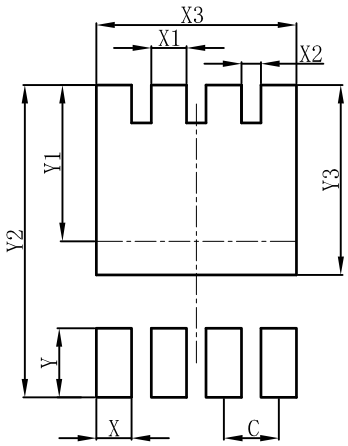
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

9.SOLDERING FOOTPRINT



DFN3333-8A	
DIM	(mm)
C	0.65
X	0.42
X1	0.42
X2	0.23
X3	2.37
Y	0.70
Y1	1.85
Y2	3.70
Y3	2.25

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

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