NB8408D

N-Channel 40-V (D-S) MOSFET

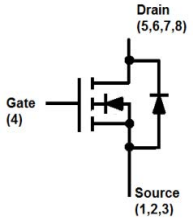
1. FEATURES

- Low RDS(on) trench technology.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.

DFN3333-8A

2. APPLICATION

- White LED boost converters
- DC/DC Conversion Circuits
- Motor Drives



3. ORDERING INFORMATION

Device	Marking	Shipping
NB8408D	BN	2000/Tape&Reel

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

Parameter		Symbol	Limits	Unit
Drain−to−Source Voltage		VDSS	40	V
Gate−to−Source Voltage		VGS	±20	V
Continuous Drain Current(Note 1)	TA =25°C	ID	17	A
	TA =70°C		12	
Pulsed Drain Current (Note 2)		IDM	60	
Continuous Source Current (Diode Conduction)(Note 1)		IS	5.5	A
Avalanche Current (L = 0.1mH)		IAS	30	A
Avalanche Energy (L = 0.1mH)		EAS	45	mJ
Power Dissipation(Note 1)	TA =25°C	PD	3.5	W
	TA =70°C		2	
Operating Junction Temperature		TJ	−55 ~+150	℃
Storage Temperature Range		Tstg	−55 ~+150	

1.Surface Mounted on 1” x 1” FR4 Board.

2.Pulse width limited by maximum junction temperature.

5. THERMAL CHARACTERISTICS

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

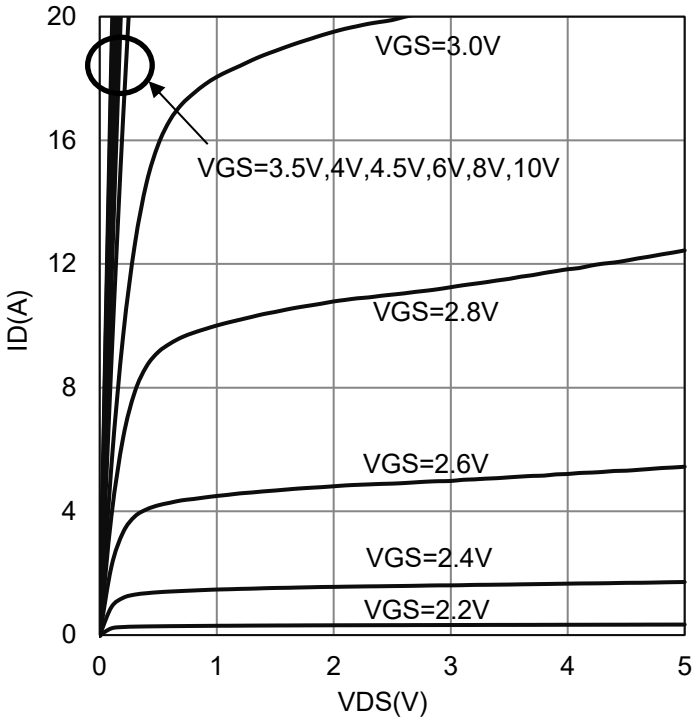
6. ELECTRICAL CHARACTERISTICS

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)		VGS(th)	1	-	-	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 32 V, VGS = 0 V) (VDS = 32 V, VGS = 0 V, TJ = 55°C)		IDSS	- -	- -	1 25	μA
On-State Drain Current(Note 3) (VDS = 5 V, VGS = 10 V)		ID(on)	20.7	-	-	A
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 11 A) (VGS = 4.5 V, ID = 8.8 A)		RDS(on)	- -	- -	7 8	mΩ
Forward Transconductance(Note 3) (VDS = 15 V, ID =11 A)		gfs	-	13.7	-	S
Diode Forward Voltage(Note 3) (IS = 2.3 A, VGS = 0 V)		VSD	-	0.74	-	V
Dynamic(Note 4)						
Total Gate Charge	(VDS = 20 V, VGS = 4.5 V,ID = 11 A)	Qg	-	33.6	-	nC
Gate-Source Charge		Qgs	-	11	-	
Gate-Drain Charge		Qgd	-	11.4	-	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	4128	-	pF
Output Capacitance		Coss	-	321	-	
Reverse Transfer Capacitance		Crss	-	271	-	
Turn-On Delay Time	(VDS = 20 V, RL = 1.9 Ω,ID = 11 A,VGEN = 10 V, RGEN = 6 Ω)	td(on)	-	22	-	ns
Rise Time		tr	-	36	-	
Turn-Off Delay Time		td(off)	-	210	-	
Fall Time		tf	-	86	-	
Gate Resistance (VGS = 0V, VDS = 0V, f = 1MHz)		Rg	-	0.45	-	Ω

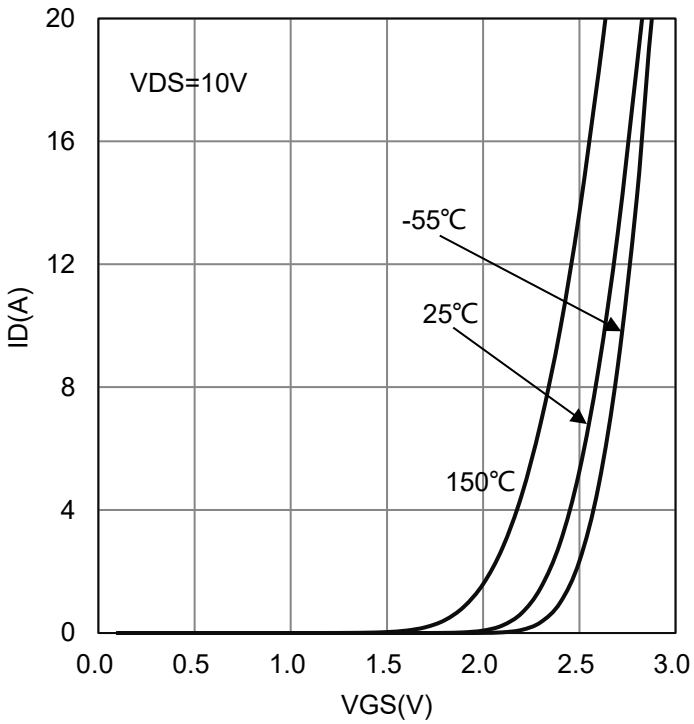
3.Pulse test: PW≤ 300μs duty cycle ≤ 2%.

4.Guaranteed by design, not subject to production testing.

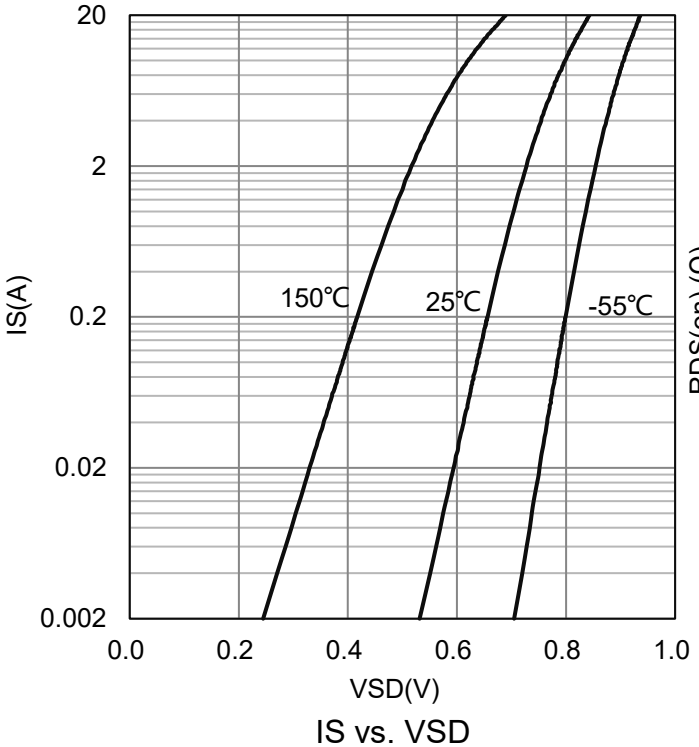
7.ELECTRICAL CHARACTERISTICS CURVES



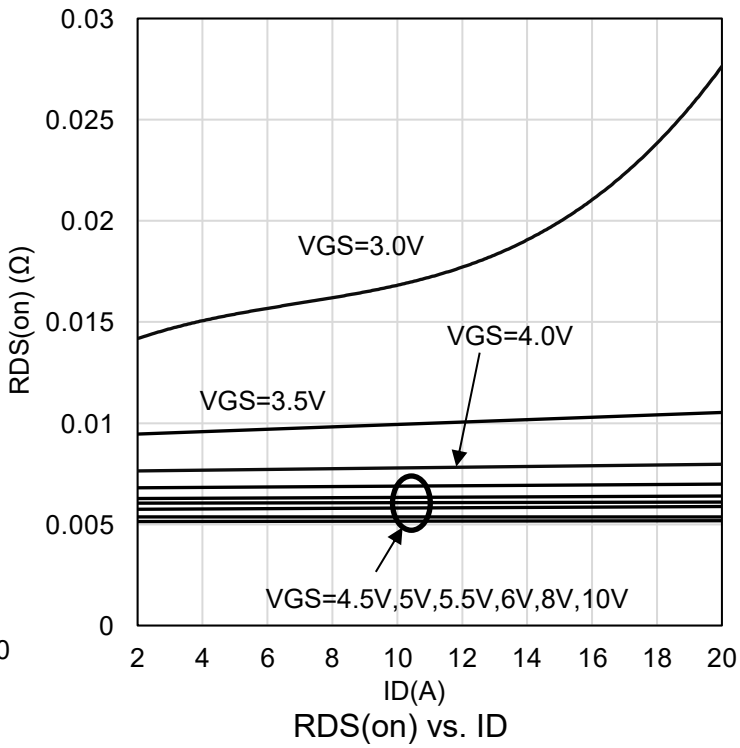
ID vs. VDS



ID vs. VGS

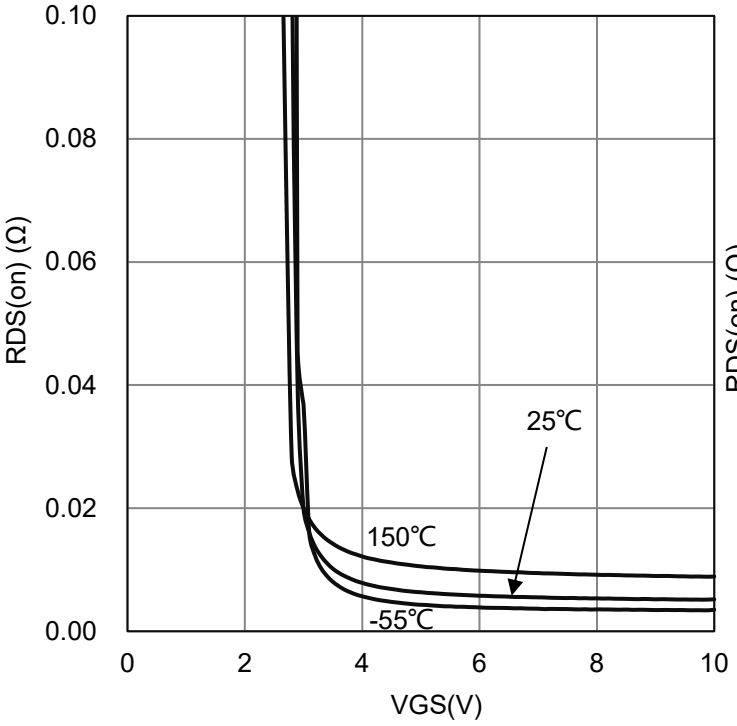


IS vs. VSD

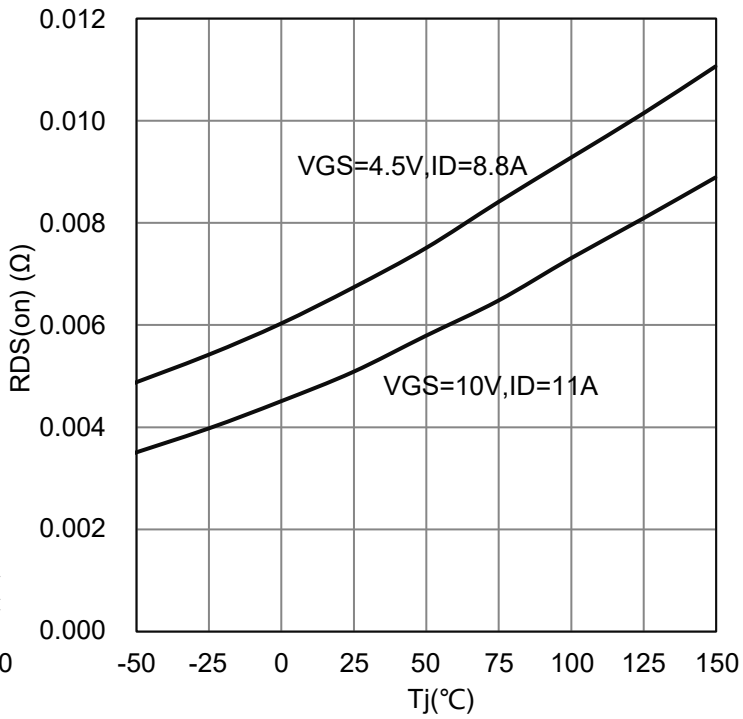


RDS(on) vs. ID

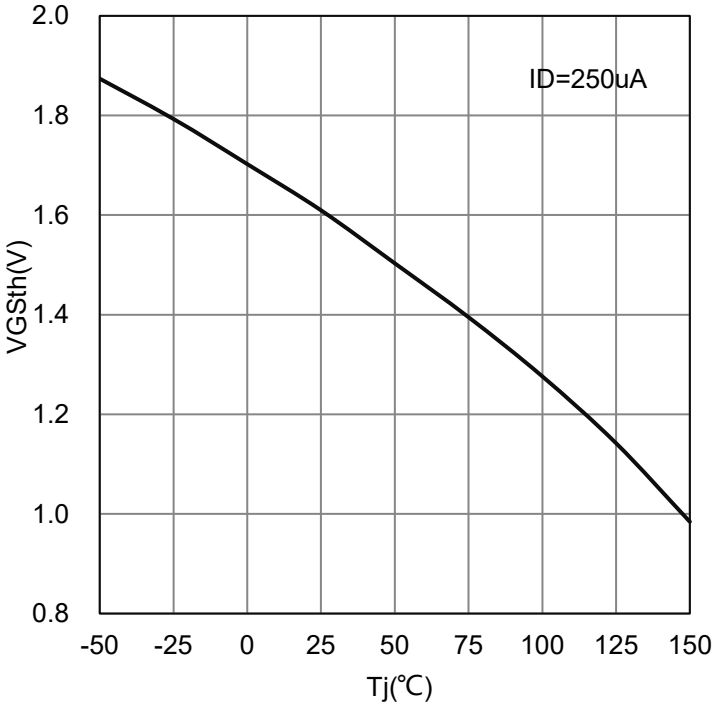
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



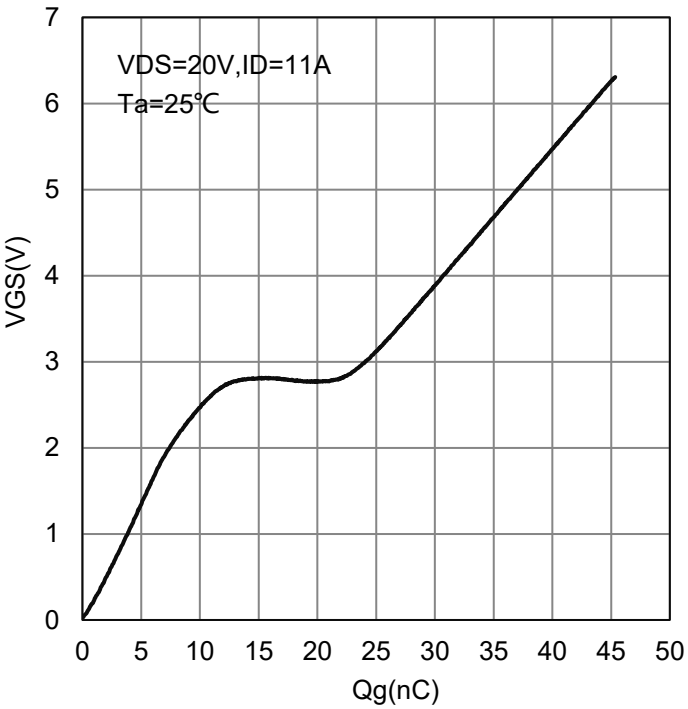
RDS(on) vs. VGS



RDS(on) vs. Tj

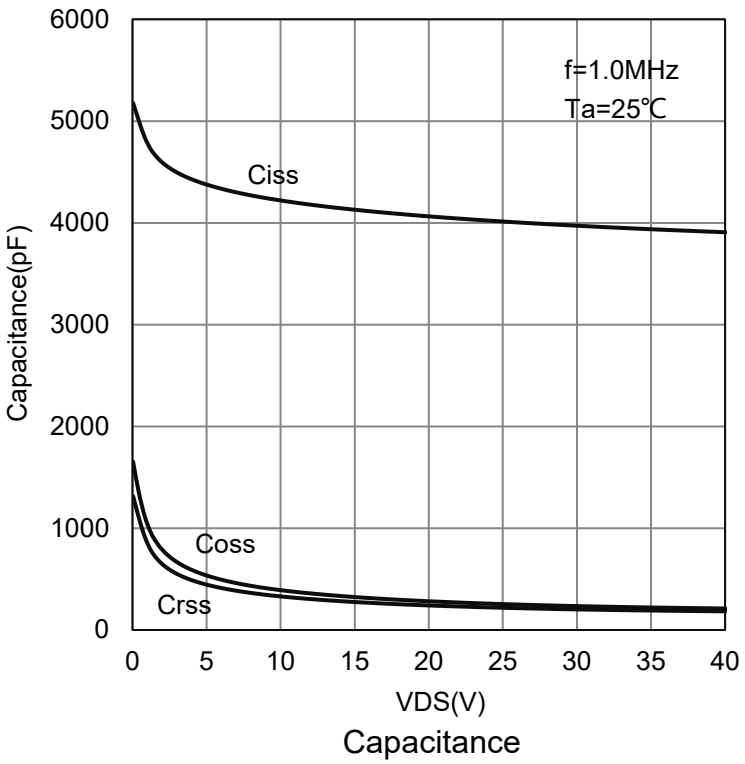


VGSth vs. Tj

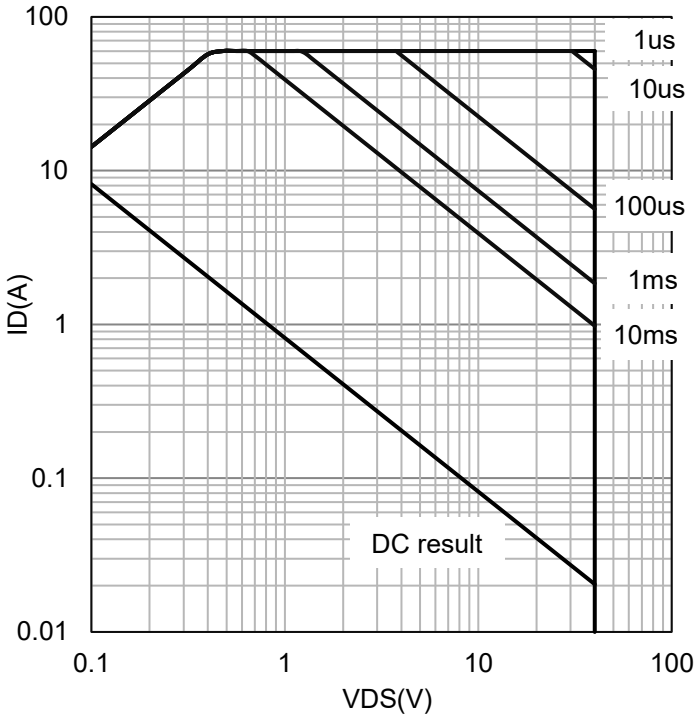


VGS vs. Qg

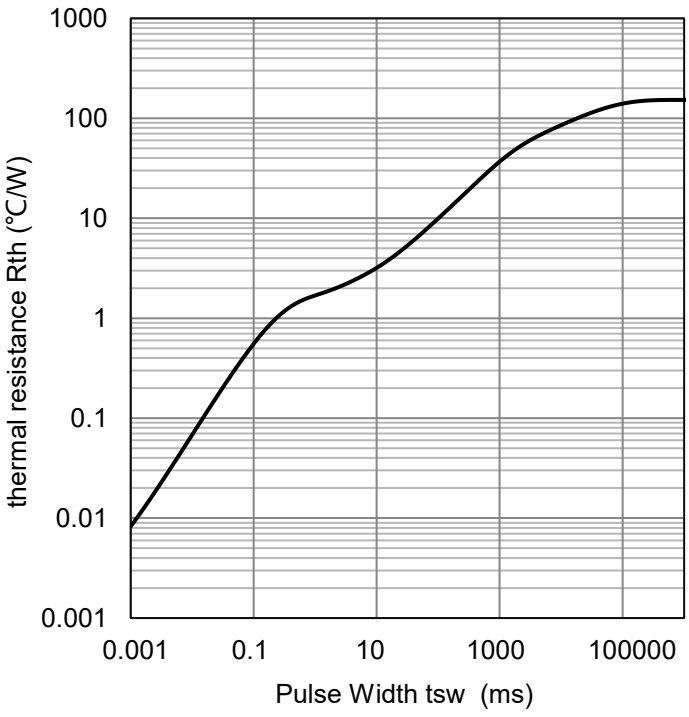
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



Capacitance

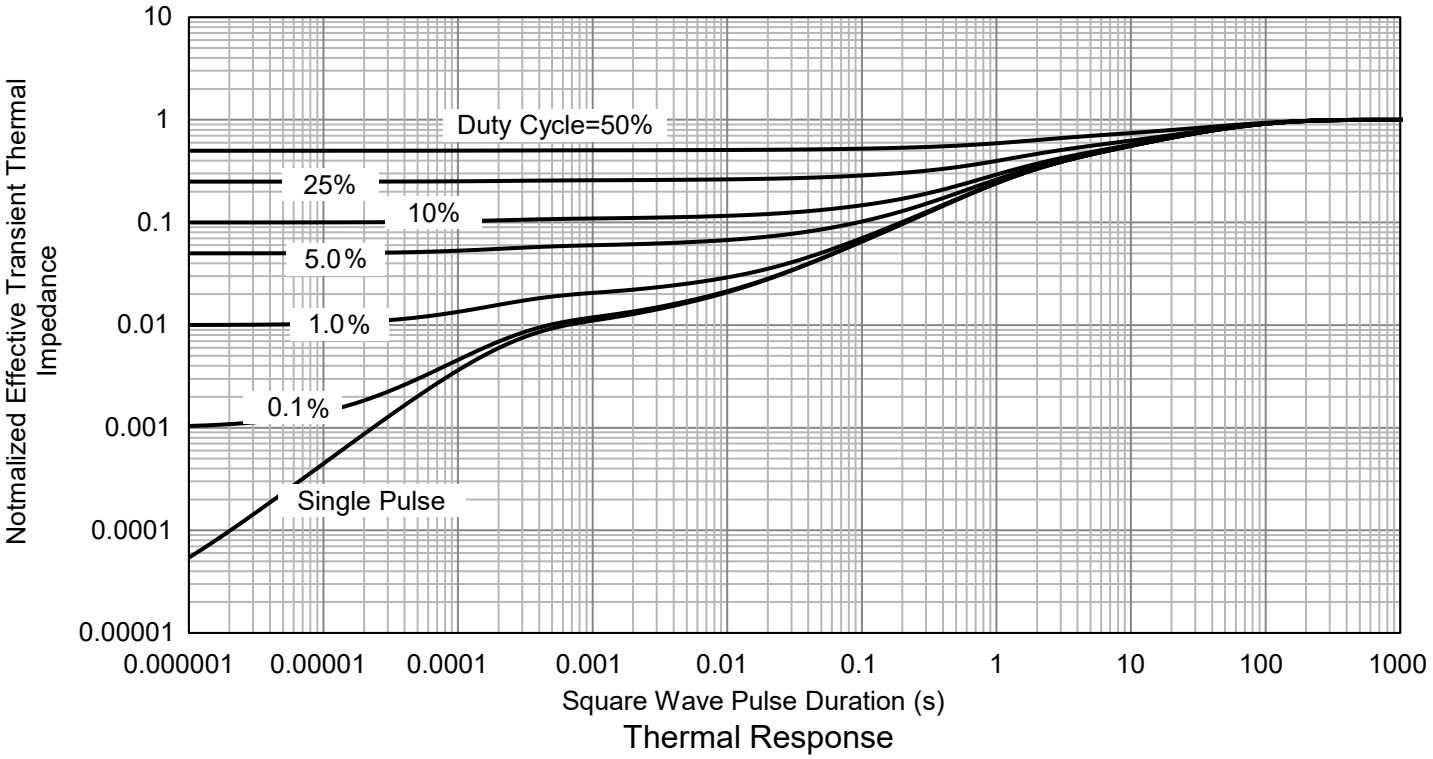


Safe Operating Area

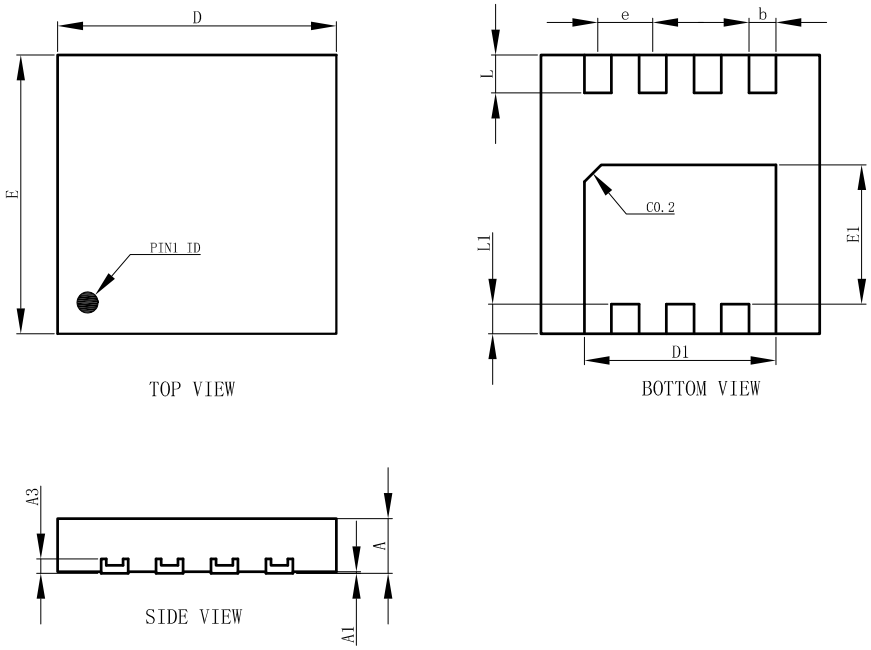


Rth vs. tsw

7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



8.OUTLINE AND DIMENSIONS



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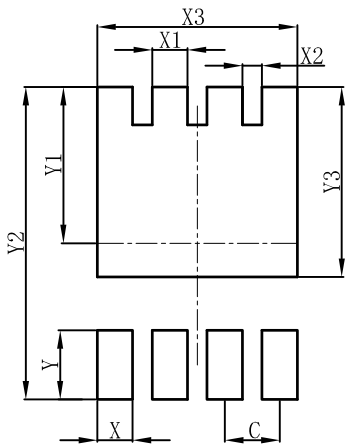
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

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