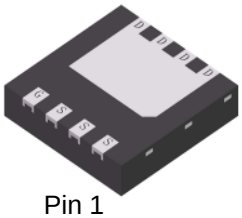
S-LPB8233DT0AG

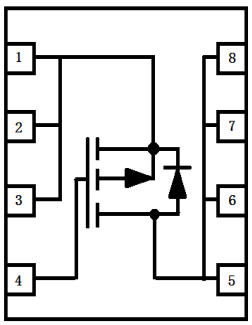
P-Channel 20-V (D-S) MOSFET



Pin 1
DFN3333-8A

1. FEATURES

- Low RDS(on) trench technology
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S-prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



2. APPLICATIONS

- Load Switches
- DC/DC Conversion
- Motor Drives

3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
S-LPB8233DT0AG	N2A	2000/Tape&Reel

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

Parameter		Symbol	Limits	Unit
Drain−to−Source Voltage		VDS	-20	V
Gate−to−Source Voltage		VGS	± 10	V
Continuous Drain Current(Note 1)	TA =25°C	ID	-18	A
	TA =70°C		-14	
Continuous Drain Current(Note 3)	TA =25°C		-7	
	TA =70°C		-5	
Pulsed Drain Current (Note 2)		IDM	-70	
Pulsed Drain Current (Note 3)			-28	
Avalanche Current		IAS	43	A
Avalanche Energy L=0.1mH		EAS	93	mJ
Power Dissipation(Note 1)	TA =25°C	PD	2.5	W
	TA =70°C		2	
Power Dissipation(Note 3)	TA =25°C		0.7	
	TA =70°C		0.4	
Operating Junction and Storage Temperature Range		TJ,TSTG	−55 ~+150	℃

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	RθJA	50	℃/W
Maximum Junction-to-Ambient(Note 3)	RθJA	174	
Maximum Junction-to-Case	RθJC	2.7	

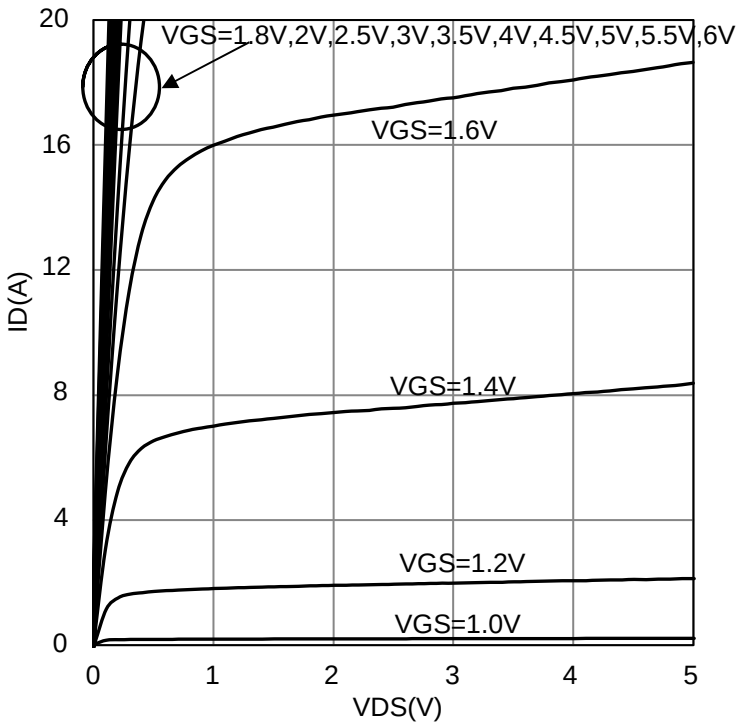
1.Surface mounted on "1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu
2.Pulse width limited by maximum junction temperature.
3.Surface mounted on FR4 board using the minimum recommended pad size.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

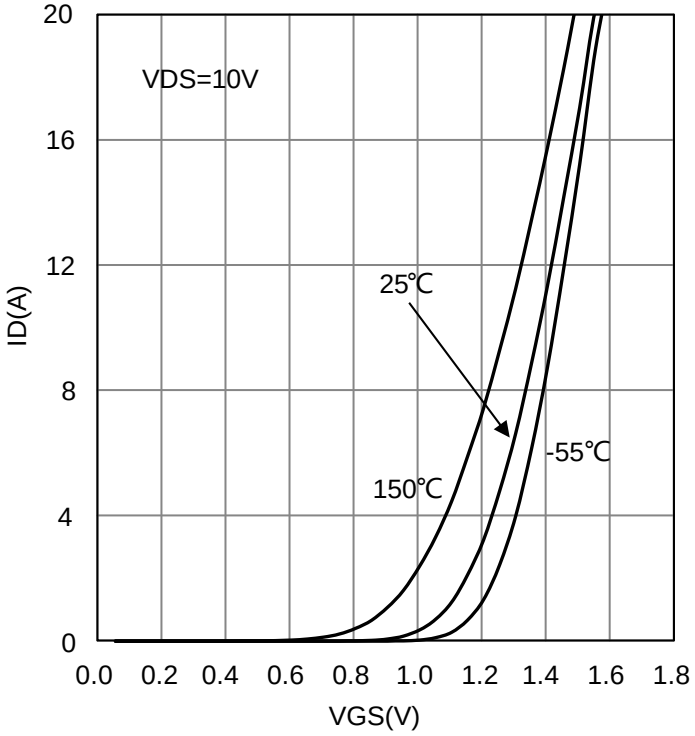
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)		V(BR)DSS	-20	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = -250 uA)		VGS(th)	-0.5	-0.7	-1.3	V
Gate-Body leakage current (VDS =0V, VGS = ±10V)		IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = -20 V, VGS = 0 V) (VDS = -20 V, VGS = 0 V, TJ = 55°C)		IDSS	- -	- -	-1 -10	μA
Drain-to-Source On-Resistance(Note 4) (VGS = -4.5 V, ID = -14 A) (VGS = -2.5 V, ID = -11 A)		RDS(ON)	- -	7.5 10	9.5 13.8	mΩ
Diode Forward Voltage(Note 4) (IS = -2.5 A, VGS = 0 V)		VSD	-	-0.69	-1.2	V
Dynamic						
Total Gate Charge	(VDS = -10 V, VGS = -4.5 V,ID = -14.6 A)	Qg	42	61	122	nC
Gate to Source Charge		Qgs	8	11.5	23	
Gate to Drain Charge		Qgd	10	15	30	
Turn-on Delay Time	(VDS=-10 V,RL=0.7Ω,ID=-14.6A,VGEN=-4.5 V,RGEN=6 Ω)	td(on)	-	29	-	nS
Rise Time		tr	-	180	-	
Turn-Off Delay Time		td(off)	-	415	-	
Fall Time		tf	-	270	-	
Input Capacitance	(VDS=-15 V, VGS=0 V, f=1MHz)	Ciss	3602	5147	6691	pF
Output Capacitance		Coss	462	661	991	
Reverse Transfer Capacitance		Crss	431	616	801	
Gate-Resistance (VDS = 0 V, VGS = 0 V, f = 1 MHz)		Rg	1.5	2.5	5	Ω
Source-Drain Diode Ratings and Characteristics(TA= 25° C)						
Continuous Current		IS	-	-	-17	A
Plused Current		ISM	-	-	-70	
Reverse Recovery Time (IF=IS,dIf/dt=400A/us)		trr	29	42	84	nS
Reverse Recovery Charge (IF=IS,dIf/dt=400A/us)		Qrr	63	91	182	nC

4.Pulse test: PW≤300us duty cycle ≤ 2%.

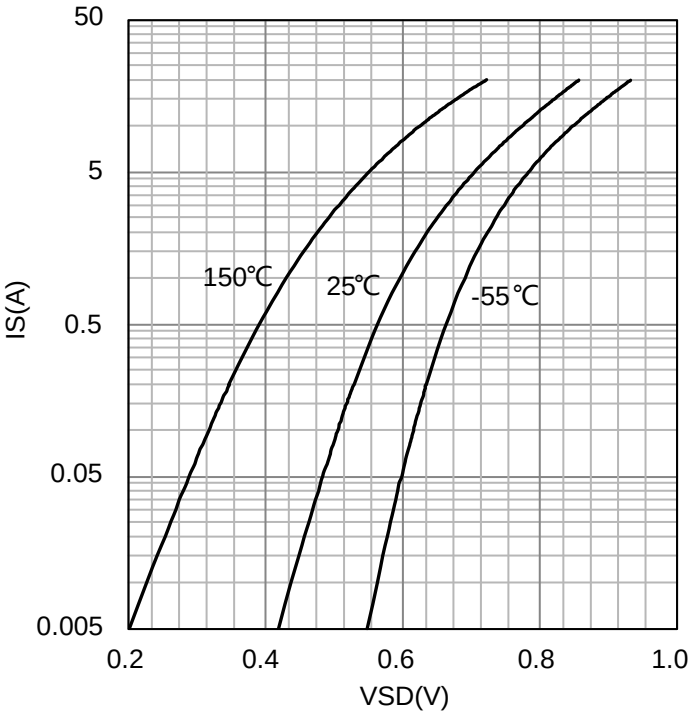
7.ELECTRICAL CHARACTERISTICS CURVES



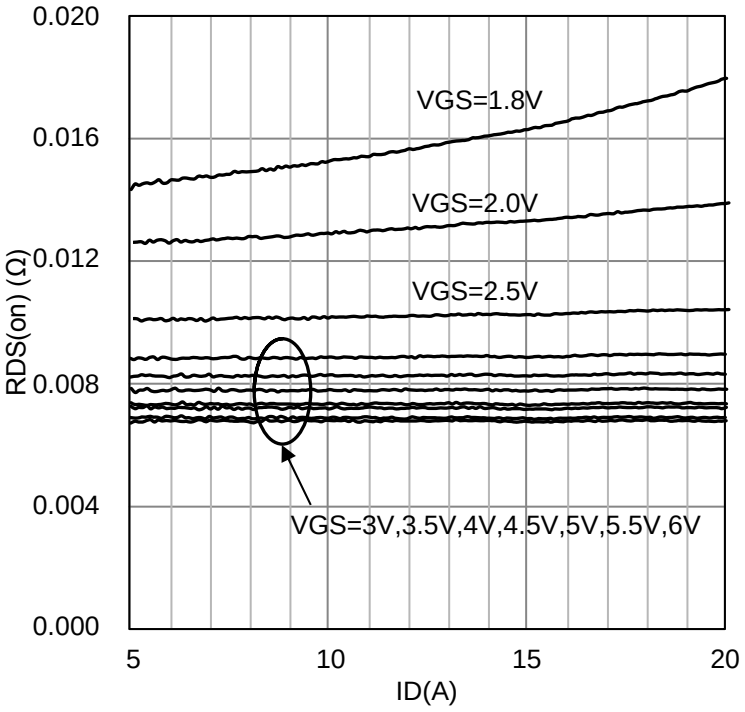
ID vs. VDS



ID vs. VGS

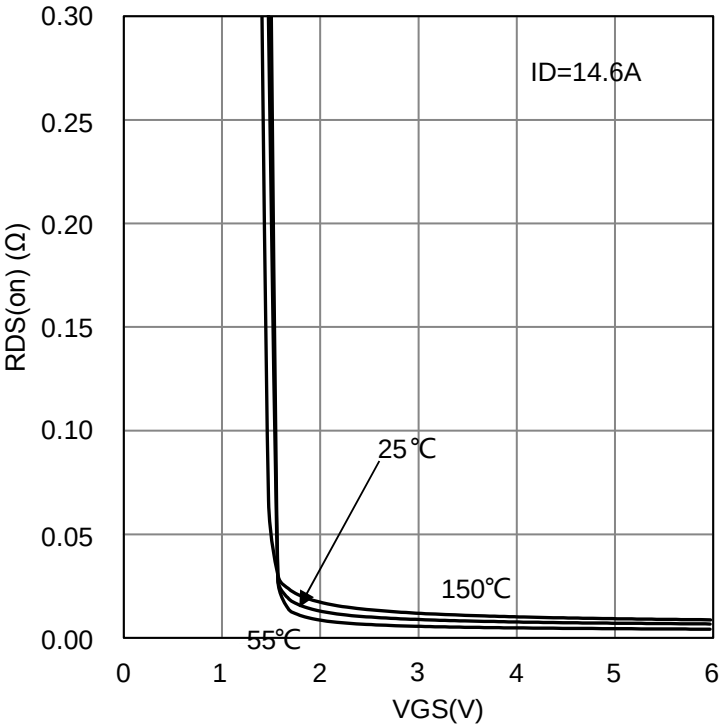


IS vs. VSD

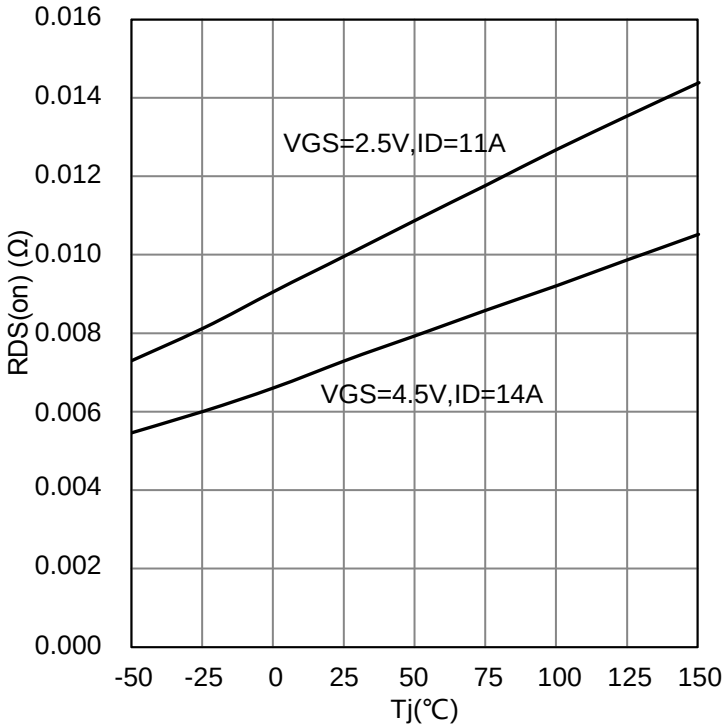


RDS(on) vs. ID

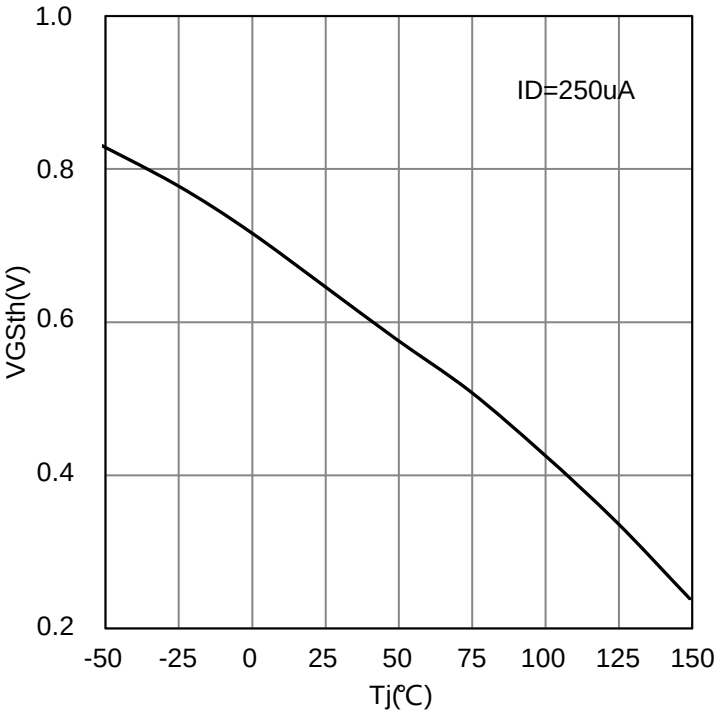
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



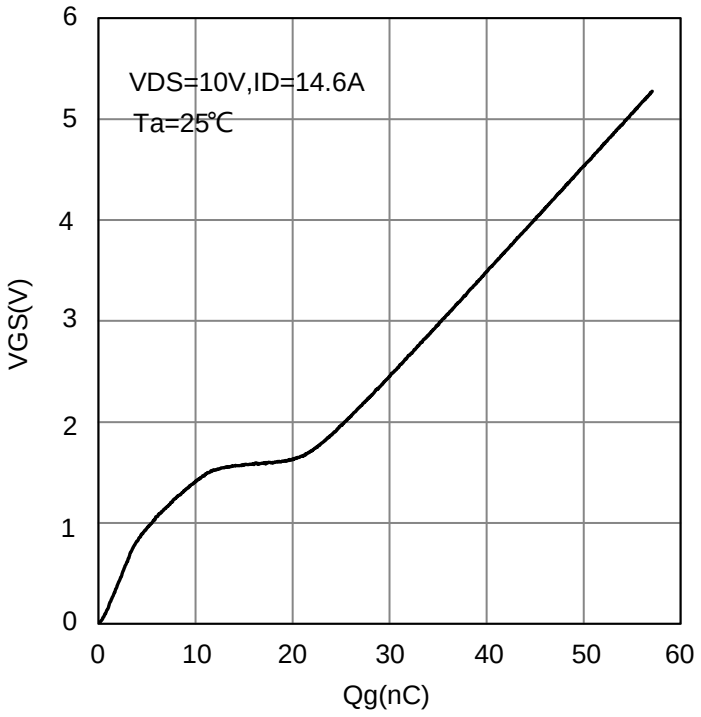
RDS(on) vs. VGS



RDS(on) vs. Tj

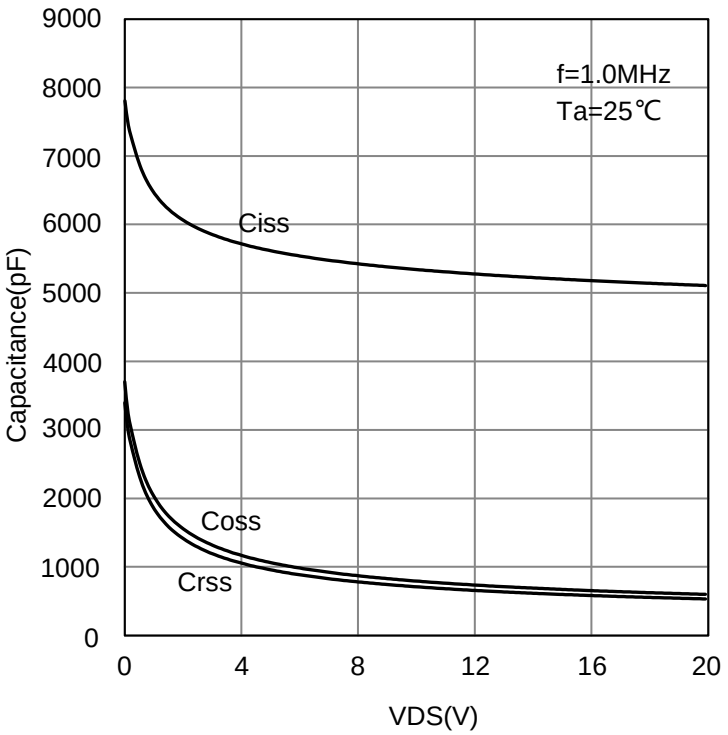


VGSTH vs. Tj

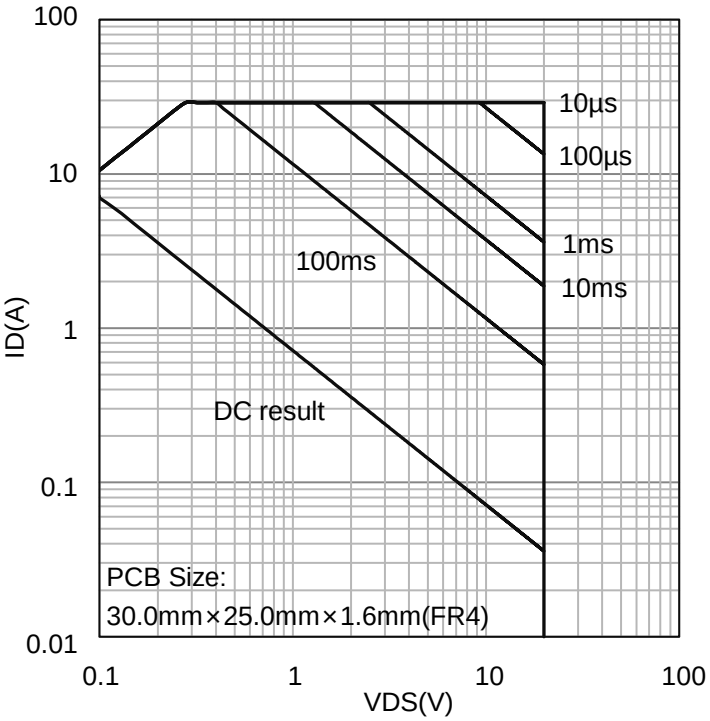


VGS vs. Qg

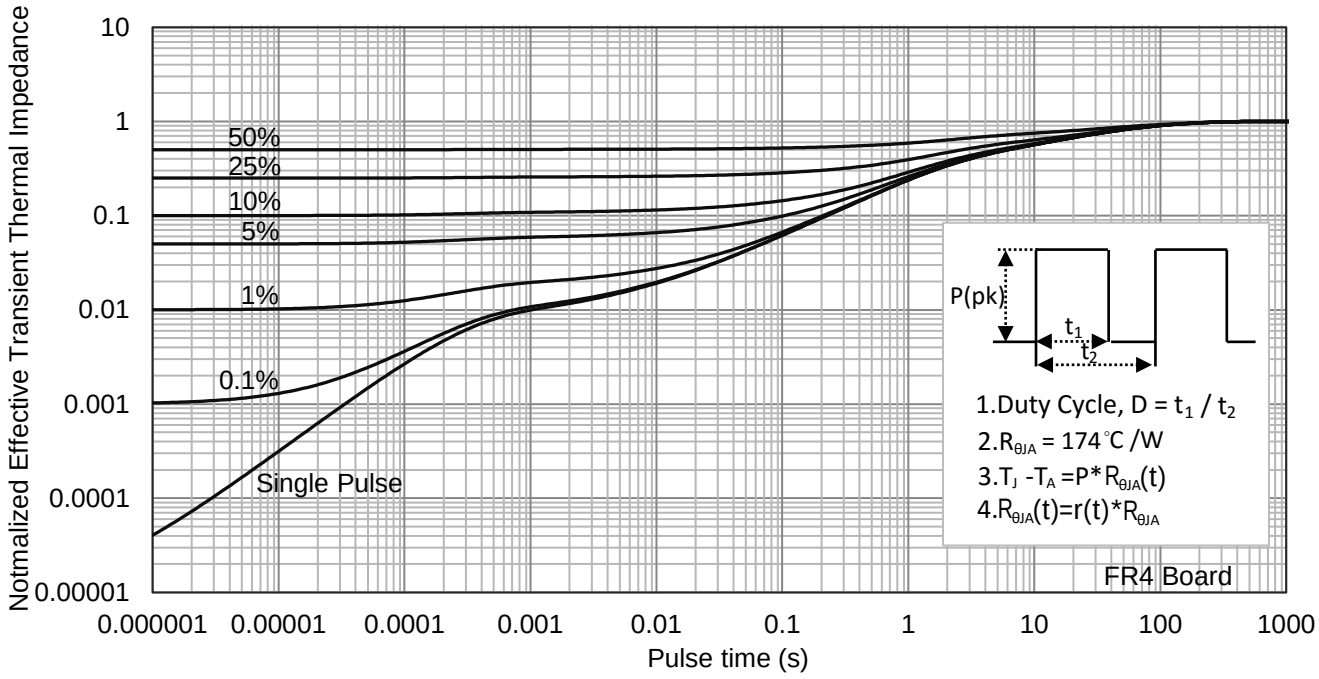
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



Capacitance



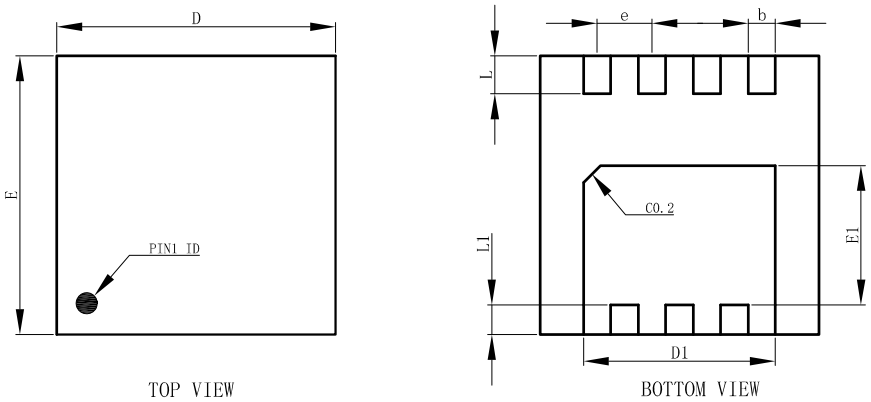
Safe Operating Area

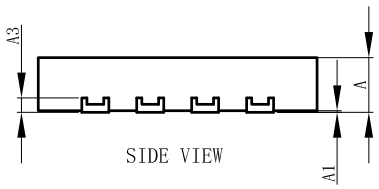


Thermal Response

8.OUTLINE AND DIMENSIONS

DFN3333-8A

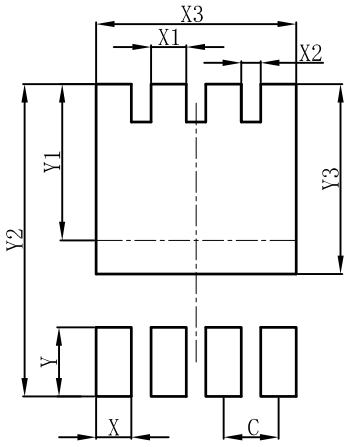




DFN3333-8A			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

9.SOLDERING FOOTPRINT

DFN3333-8A



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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