

# PB8413D

## P-Channel 40-V (D-S) MOSFET



DFN3333-8A

### 1. FEATURES

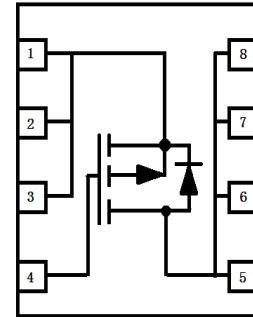
- Low RDS(on) trench technology
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

### 2. APPLICATIONS

- Load Switches
- DC/DC Conversion
- Motor Drives

### 3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
PB8413D	AP	2000/Tape&Reel



### 4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	VDS	-40	V
Gate-to-Source Voltage	VGS	±20	V
Continuous Drain Current(Note 1)	ID	TA =25°C	-14
		TA =70°C	-12
Pulsed Drain Current (Note 2)	IDM	-50	A
Power Dissipation(Note 1)	PD	TA =25°C	3.5
		TA =70°C	2
Operating Junction Temperature	TJ	-55 ~+150	°C
Storage Temperature Range	Tstg	-55 ~+150	

### 5. THERMAL CHARACTERISTICS

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

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)**

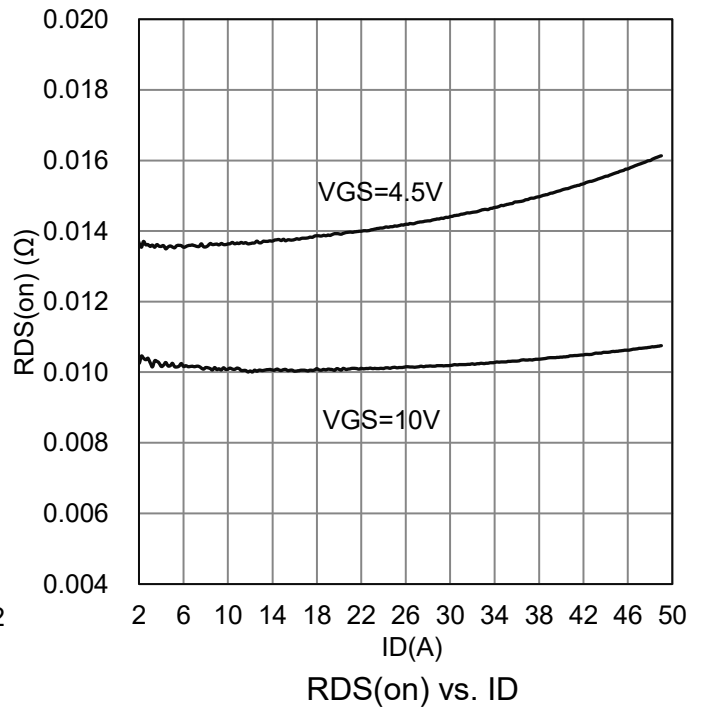
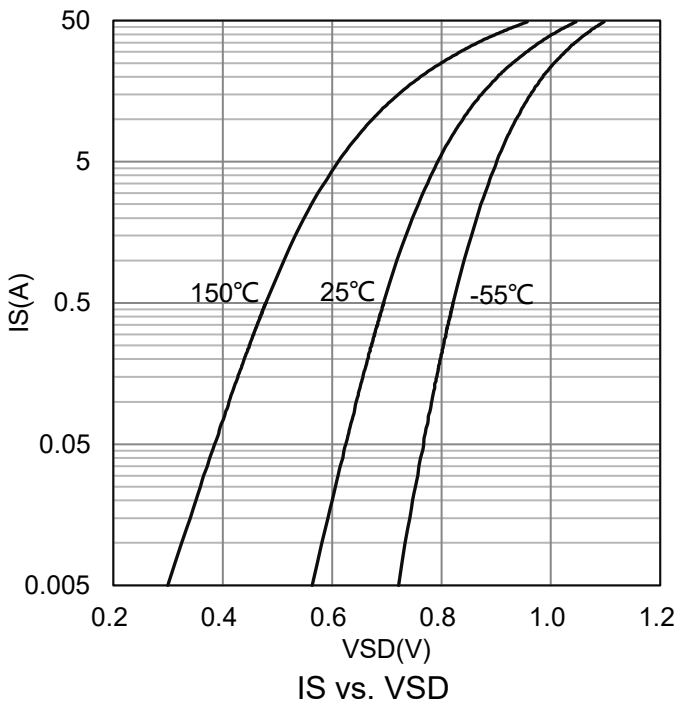
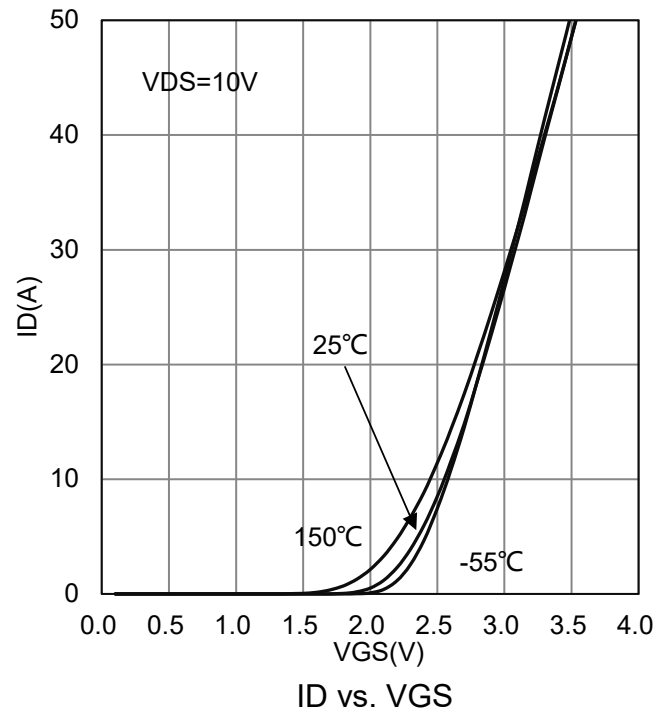
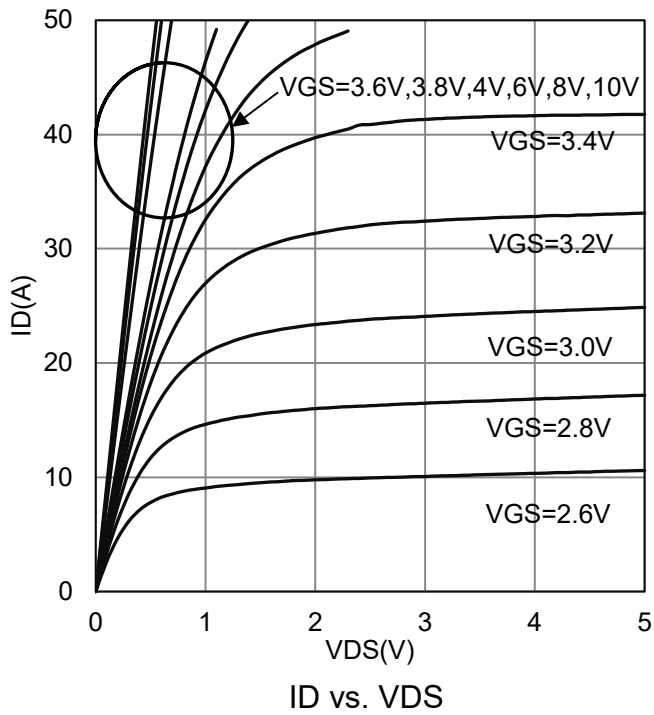
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Drain-Source Breakdown Voltage (VGS = 0, ID = -250μA)	VBRDSS	-40	-	-	V	
Gate-Source Threshold Voltage (VDS = VGS, ID = -250 uA)	VGS(TH)	-1	-	-	V	
Gate-Body leakage current (VDS = 0V, VGS = ±20 V)	IGSS	-	-	±100	nA	
Zero Gate Voltage Drain Current (VDS = -32 V, VGS = 0 V) (VDS = -32 V, VGS = 0 V, TJ = 55°C)	IDSS	-	-	-1 -25	μA	
Drain-to-Source On-Resistance(Note 3) (VGS = -10 V, ID = -1 A) (VGS = -4.5 V, ID = -1 A)	RDS(ON)	-	-	12 18	mΩ	
Diode Forward Voltage(Note 3) (IS = -1 A, VGS = 0 V)	VSD	-	-0.8	-	V	
Dynamic(Note 4)						
Total Gate Charge	(VDS = -15 V, VGS = -5V ,ID = -1 A)	Qg	-	50	-	nC
Gate to Source Charge		Qgs	-	10	-	
Gate to Drain Charge		Qgd	-	10	-	
Turn-on Delay Time	(VDD=-15 V,RL=6Ω,ID=- 1A,VGEN=-10V)	td(ON)	-	9	-	nS
Rise Time		tr	-	10	-	
Turn-Off Delay Time		td(OFF)	-	100	-	
Fall Time		tf	-	40	-	
Input Capacitance	(VDS = -20 V, VGS = 0 V, f = 1 MHz)	Ciss	-	3974	-	pF
Output Capacitance		Coss	-	292	-	
Reverse Transfer Capacitance		Crss	-	244	-	

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

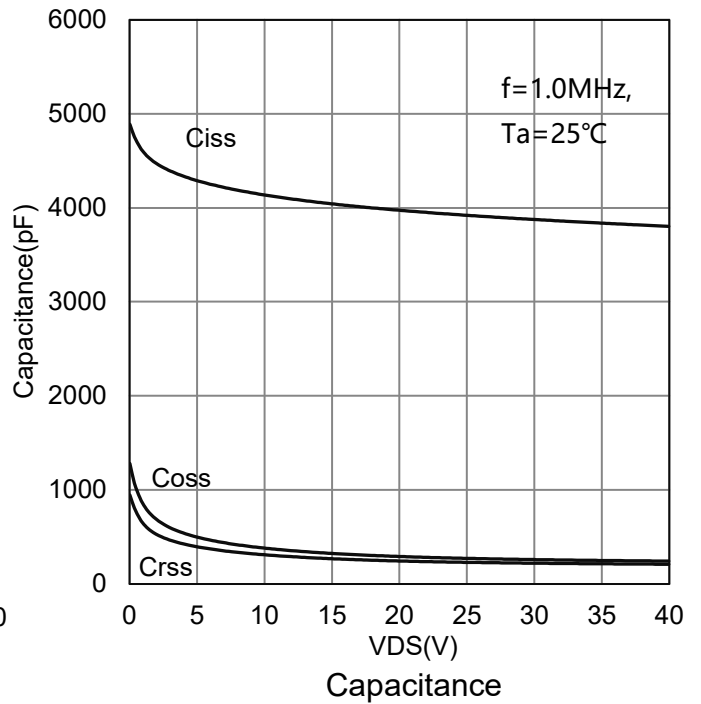
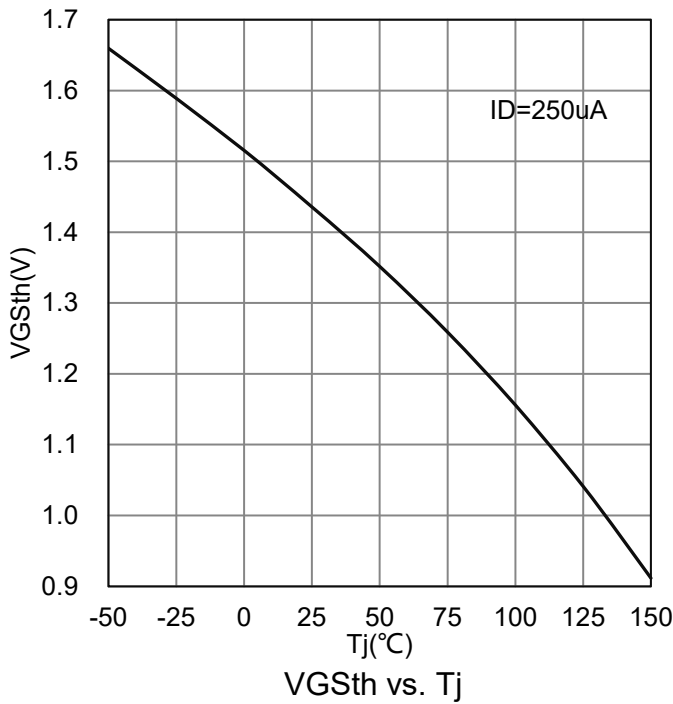
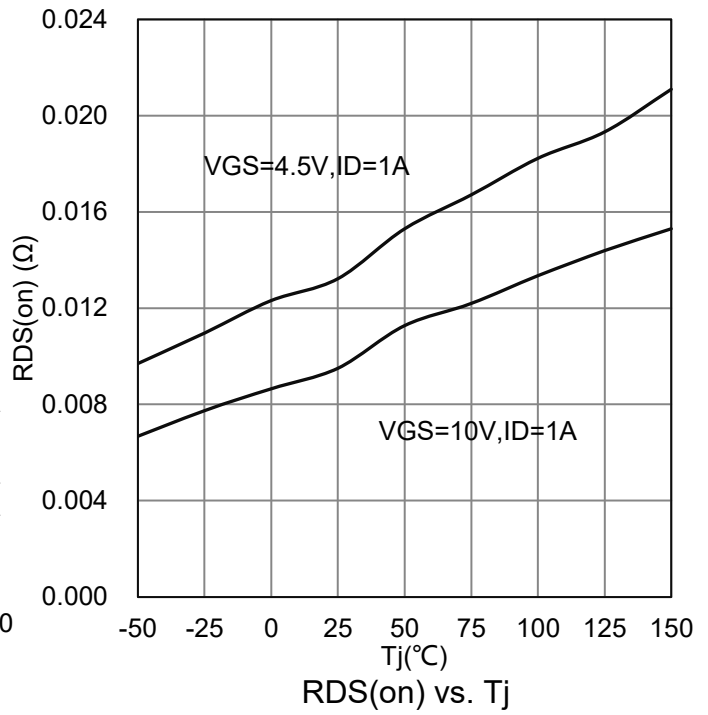
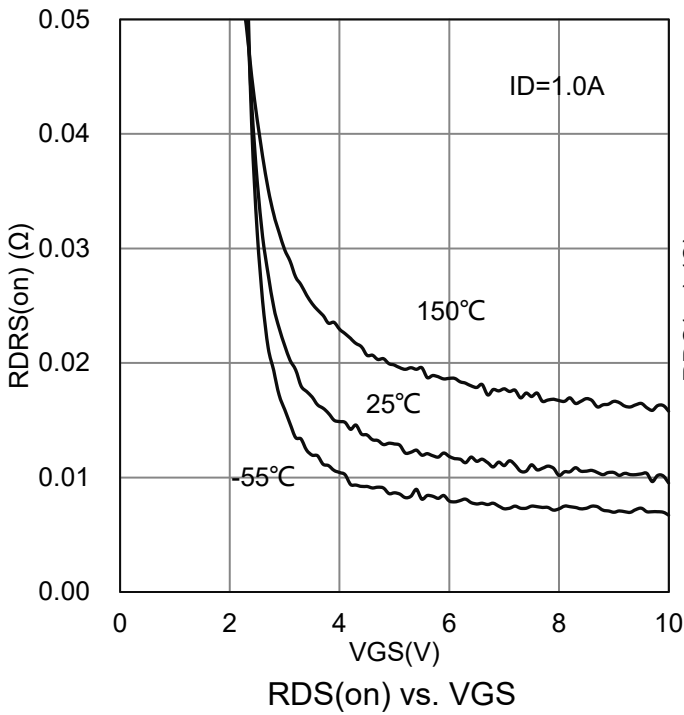
4.Guaranteed by design, not subject to production testing.

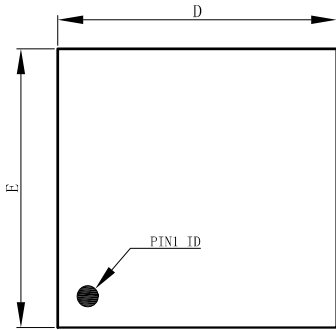


**7. ELECTRICAL CHARACTERISTICS CURVES**

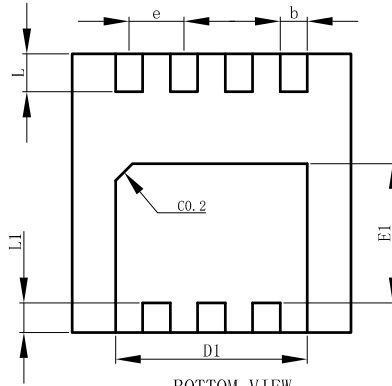


**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**

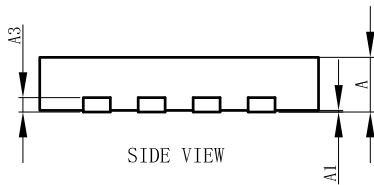


**8. OUTLINE AND DIMENSIONS**
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TOP VIEW

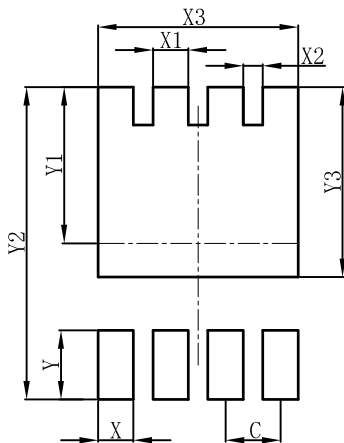


BOTTOM VIEW



SIDE VIEW

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**
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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

