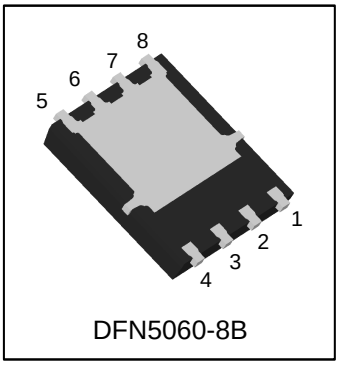
LP7507DT3WG

60V P-Channel Power MOSFET



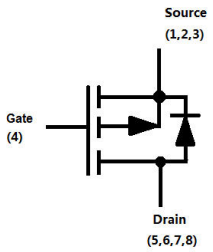
DFN5060-8B

1. FEATURES

- Low Thermal Resistance.
- Fast switching.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Power Tools
- DC/DC Conversion
- Motor Control



3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
LP7507DT3WG	LP7507	5000/Tape&Reel

4. MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	-60	V
Gate-to-Source Voltage		VGS	±20	V
Continuous Drain Current(Note 1)	TA=25℃	ID	-14	A
	TA=100℃		-8.8	
Pulsed Drain Current (Note 2)	TA=25℃	IDM	-56	A
Continuous Drain Current(Note 1)	TC=25℃	ID	-67	A
	TC=100℃		-42	
Pulsed Drain Current (Note 2)	TC=25℃	IDM	-268	A
Avalanche Current		IAS	60	A
Avalanche Energy(L=0.1mH)		EAS	180	mJ
Power Dissipation(Note 1)	TA=25℃	PD	3	W
	TA=100℃		1.25	
Power Dissipation	TC=25℃	PD	125	W
	TC=100℃		50	
Operating Junction and Storage Temperature Range		TJ/TSTG	-55~+150	℃

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Thermal Resistance,Junction-to-Ambient(Note 1)	RθJA	40	℃/W
Thermal Resistance,Junction-to-Case	RθJC	1	

Note: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 (TJ=25℃ unless otherwise specified)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain to Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)		BVDSS	-60	-	-	V
Gate Threshold Voltage (VDS = VGS , ID = -250 μA)		VGS(th)	-1.6	-2	-2.4	V
Gate-Body leakage current (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	± 100	nA
Zero Gate Voltage Drain Current (VDS = -60 V, VGS = 0 V)		IDSS	-	-	-1	μA
Drain-to-Source On-Resistance(Note 3) (VGS = -10 V, ID = -6 A)		RDS(ON)	-	5.5	7	mΩ
Dynamic						
Total Gate Charge	(VDS = -30 V, VGS = -4.5 V,ID = -6 A)	Qg	-	41	-	nC
Gate to Source Charge		Qgs	-	14.5	-	
Gate to Drain Charge		Qgd	-	15	-	
Turn-on Delay Time	(VDD= -30 V,RL = 5 Ω,ID= -6 A, VGEN= -10 V RGEN = 6 Ω)	td(on)	-	28	-	nS
Rise Time		tr	-	18	-	
Turn-Off Delay Time		td(off)	-	158	-	
Fall Time		tf	-	52	-	
Input Capacitance	(VDS = -30 V, VGS = 0 V, f = 100kHz)	Ciss	-	5550	-	pF
Output Capacitance		Coss	-	910	-	
Reverse Transfer Capacitance		Crss	-	63	-	
Diode characteristics						
Continuous Current TC = 25℃		IS	-	-	-67	A
Plused Current TC = 25℃		ISM	-	-	-268	A
Diode Forward Voltage (IS = -2 A,VGS = 0 V)		VSD	-	-0.7	-1.2	V
Reverse Recovery Time (VR=-30V,IF=-15A,dIF/dt=100A/us)		trr	-	60	-	ns
Reverse Recovery Charge (VR=-30V,IF=-15A,dIF/dt=100A/us)		Qrr	-	105	-	nC

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

7. ELECTRICAL CHARACTERISTICS CURVES

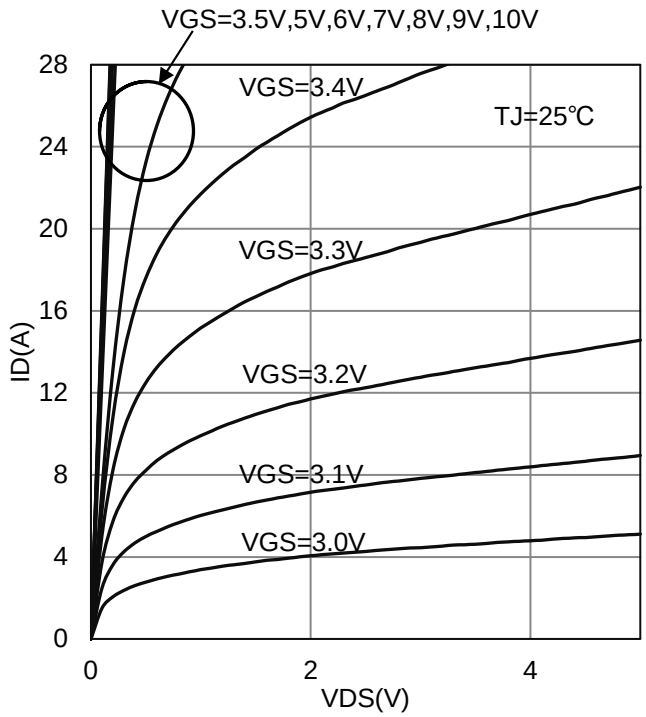


Figure 1.ID vs. VDS

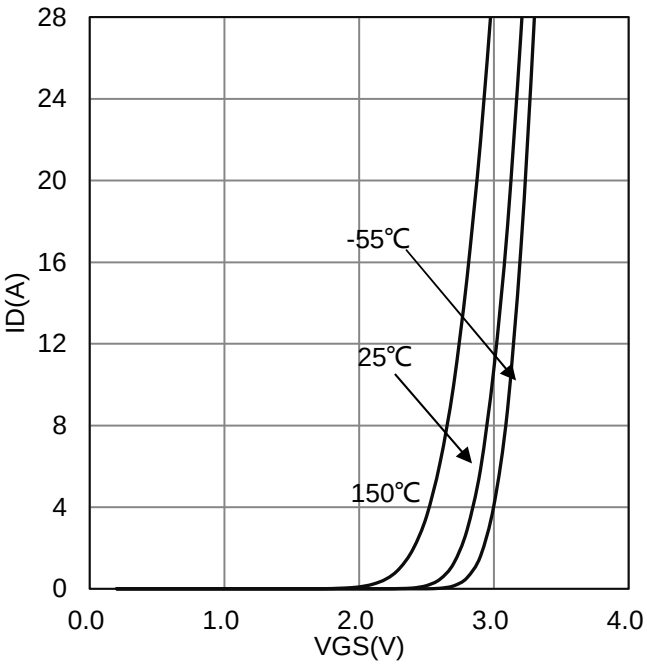


Figure 2.ID vs. VGS

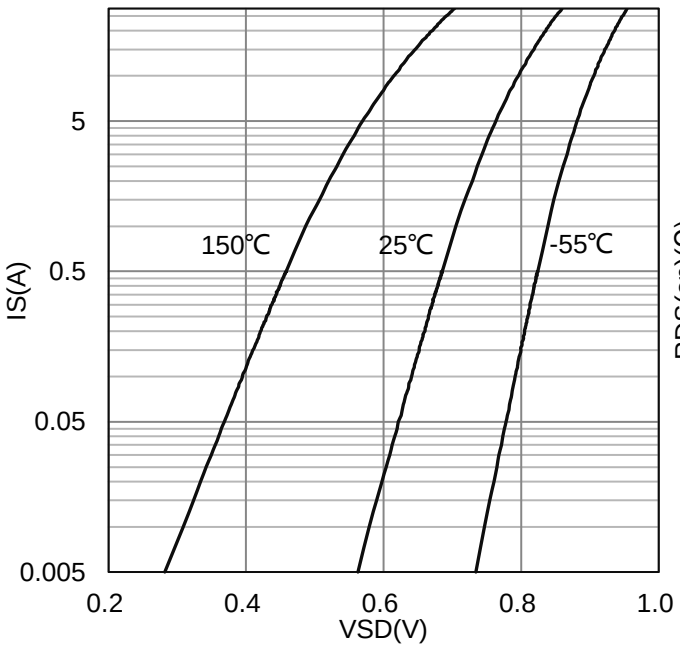


Figure 3.IS vs. VSD

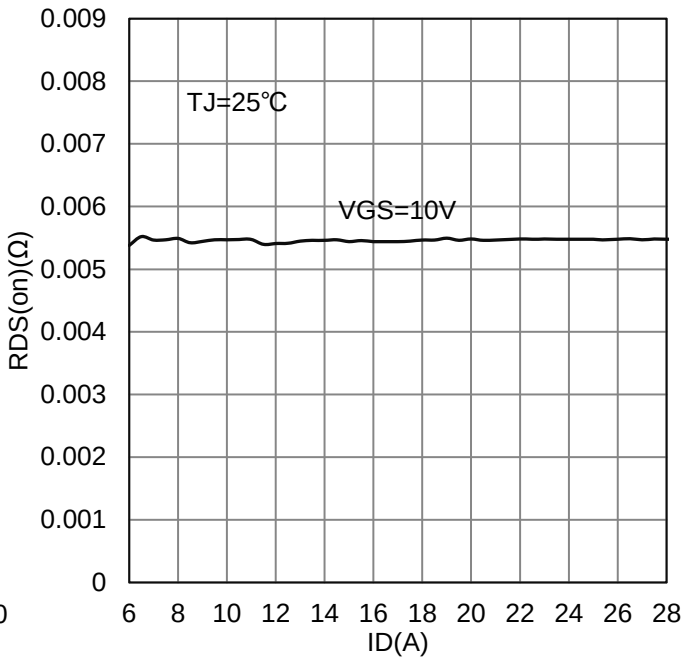


Figure 4.RDS(on) vs. ID

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

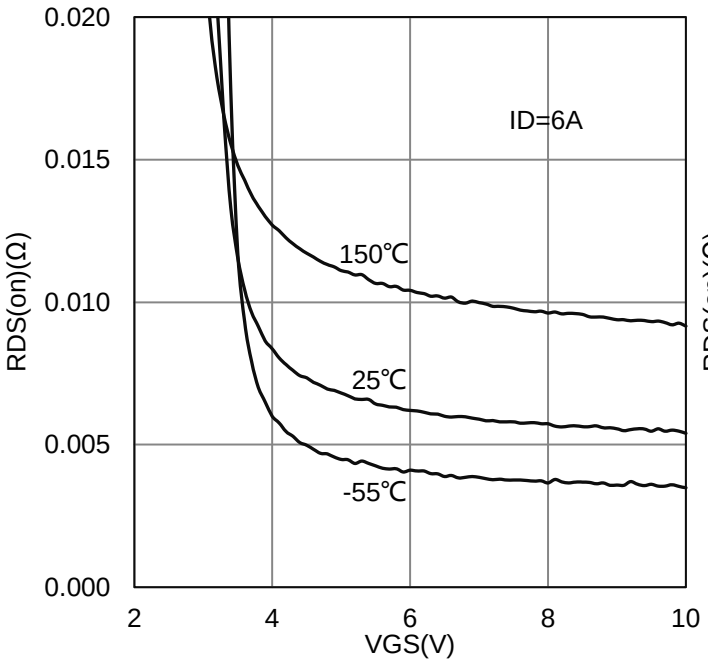


Figure 5.RDS(on) vs. VGS

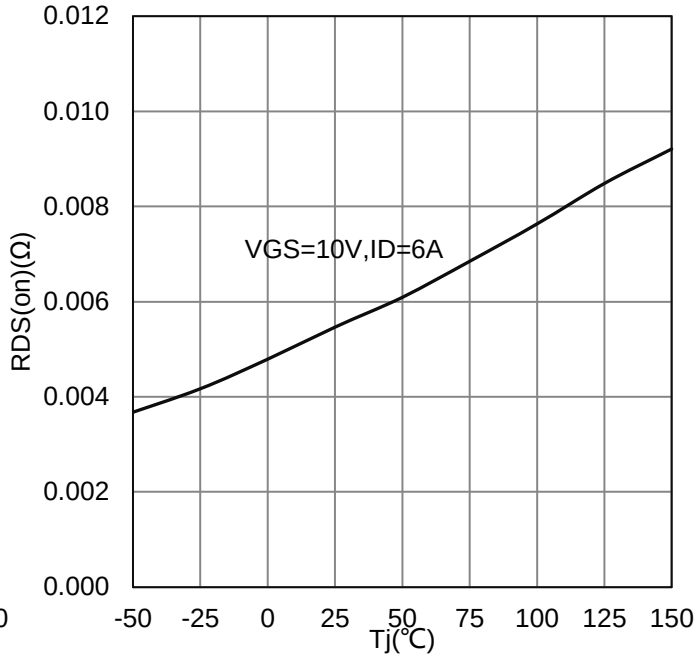


Figure 6.RDS(on) vs. Tj

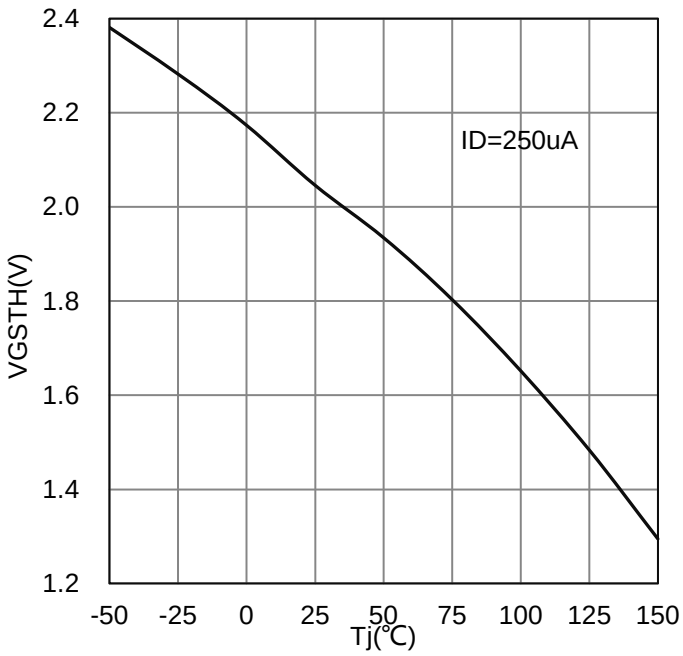


Figure 7.VGSth vs. Tj

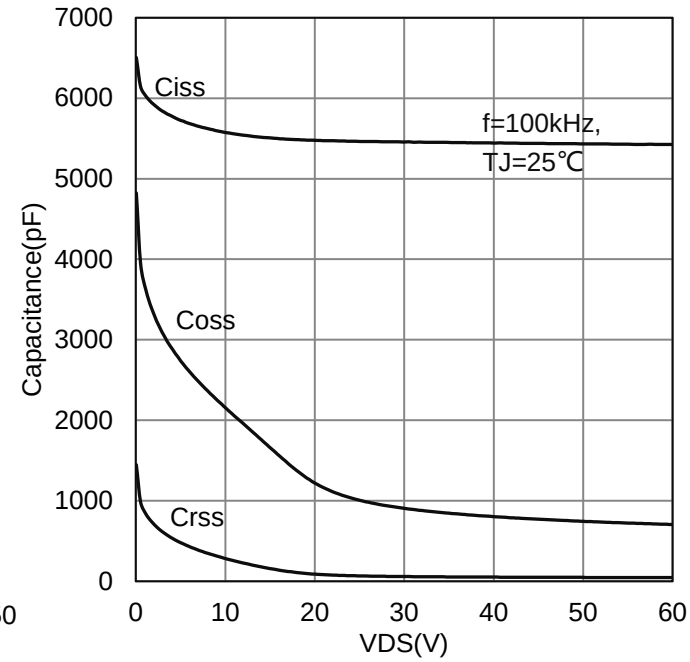


Figure 8.Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

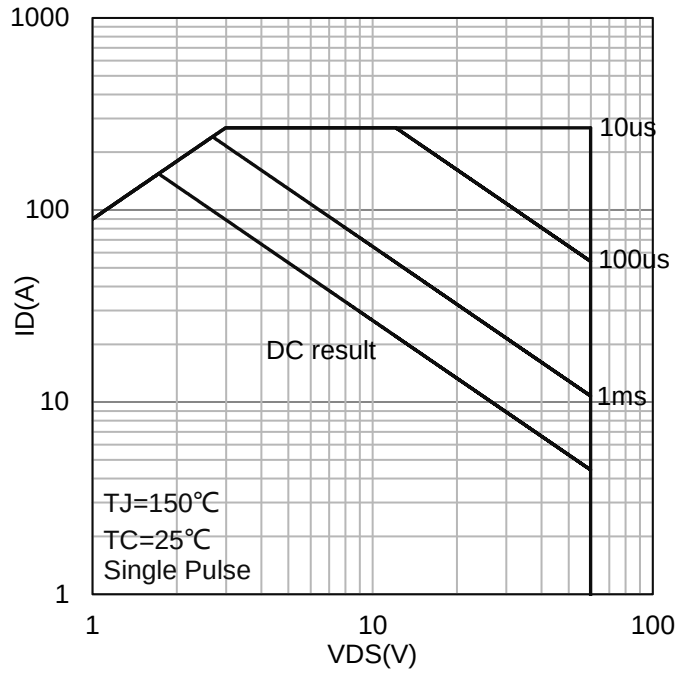


Figure 9.Safe Operating Area

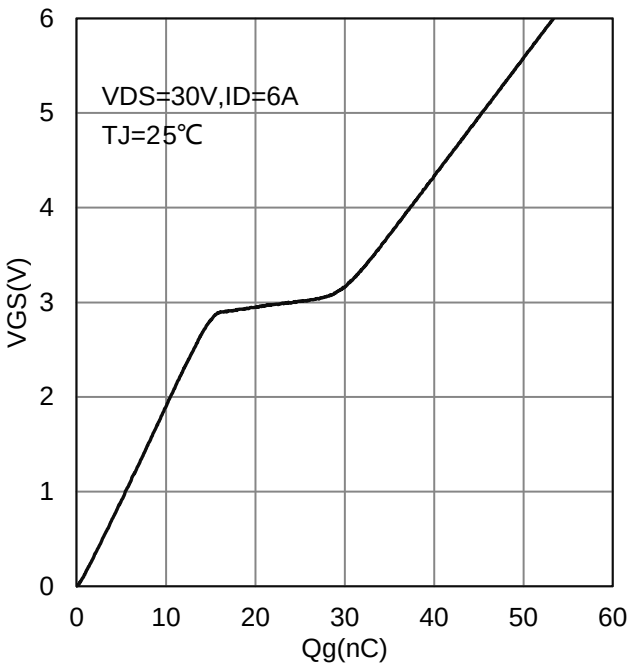


Figure10.VGS vs.Qg

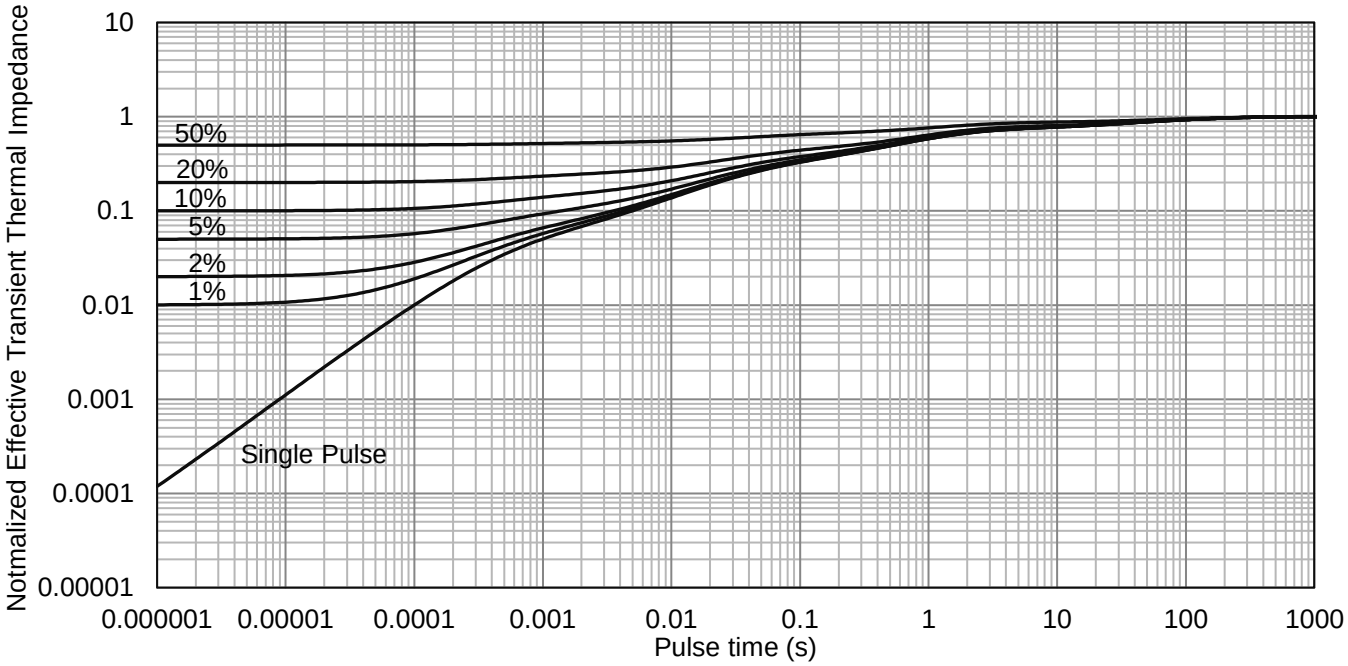


Figure 11.Thermal Response

8.OUTLINE AND DIMENSIONS

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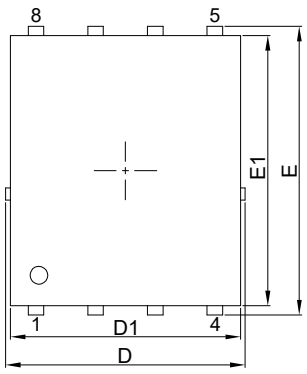
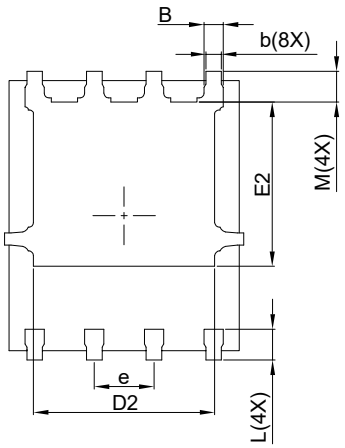
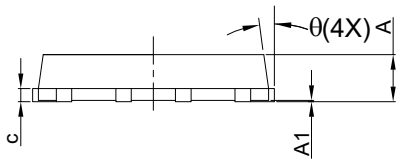


TOP VIEW



BOTTOM VIEW

DFN5060-8B			
DIM	MIN	NOR	MAX
A	0.90	1.00	1.10
A1	0.00	0.02	0.05
E	6.00	6.15	6.30
E1	5.66	5.76	5.86
E2	3.40	3.50	3.60
D	4.95	5.10	5.25
D1	4.80	4.90	5.00
D2	3.76	3.86	3.96
b	0.30	0.35	0.40
B	0.36	0.41	0.46
L	0.56	0.66	0.76
M	0.56	0.66	0.76
e	1.27BSC		
c	0.254REF.		
θ	0 °	-	12°

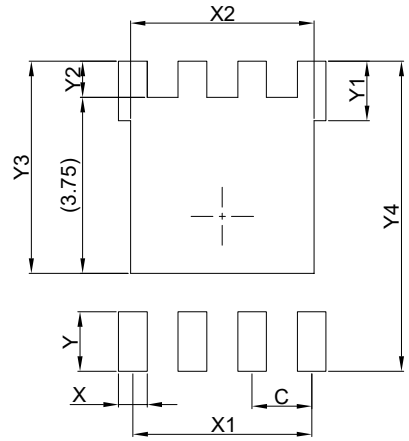


SIDE VIEW

GENERAL NOTES

1. Top package surface finish Ra Max0.4um
2. Bottom package surface finish Ra Max0.4um
3. Side package surface finish Ra Max0.4um
4. Protrusion or Gate Burrs shall not exceed 0.05mm per side
5. Offcenter Max0.038mm; Mismatch Max 0.038mm.

9.SOLDERING FOOTPRINT



DFN5060-8B	
DIM	(mm)
C	1.27
X	0.61
X1	3.81
X2	3.91
Y	1.27
Y1	1.27
Y2	0.77
Y3	4.52
Y4	6.61

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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