PDFN5X6-8L

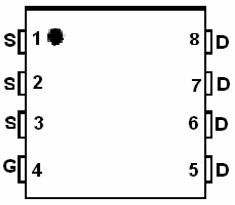
RoHS COMPLIANT

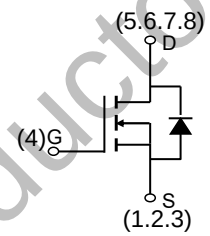
WGN028V40

Features:

- ☐ Advanced Trench Technology
- ☐ Excellent Switching Characteristics
- ☐ Extended Safe Operating Area
- ☐ Ultra Low Gate Charge:Qg=73nC (Typ.)
- ☐ VDSS=40V, ID=100A
- ☐ Rds(on):3.5mΩ(Typ.) @VG=10V
- ☐ 100% Avalanche Tested

Schematic diagram





Absolute Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		40	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25℃	100	A
		T_C = 100℃	65	A
I_{DM}	Pulsed Drain Current note1		400	A
E_{AS}	Single Pulsed Avalanche Energy note2		150	mJ
P_D	Power Dissipation	T_C = 25℃	61	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		2	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

WildGoose Semiconductor

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	40	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=40V, V_{GS}=0V,	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	1.4	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=30A	-	3.5	4.3	mΩ
		V_{GS}=4.5V, I_D=20A	-	4.1	5.4	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=20V, V_{GS}=0V, f=1.0MHz	-	5595	-	pF
C_{oss}	Output Capacitance		-	411	-	pF
C_{rss}	Reverse Transfer Capacitance		-	340	-	pF
Q_g	Total Gate Charge	V_{DS}=20V, I_D=30A, V_{GS}=10V	-	65	-	nC
Q_{gs}	Gate-Source Charge		-	12.5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	15	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=20V, I_D=30A, R_L=1Ω, R_{GEN}=3Ω, V_{GS}=10V	-	12	-	ns
t_r	Turn-on Rise Time		-	16	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	39	-	ns
t_f	Turn-off Fall Time		-	15	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	100	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	400	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=30A	-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time	T_J=25℃, I_F=30A,dI/dt=100A/μs	-	22	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	11	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: T_J=25℃, V_{DD}=20V, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=24.5A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

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Typical Performance Characteristics

Figure1: Output Characteristics

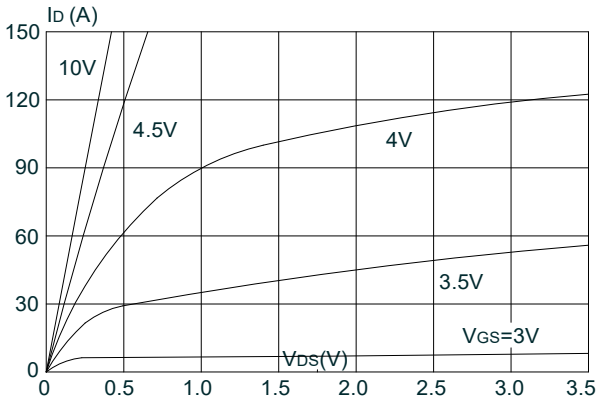


Figure 2: Typical Transfer Characteristics

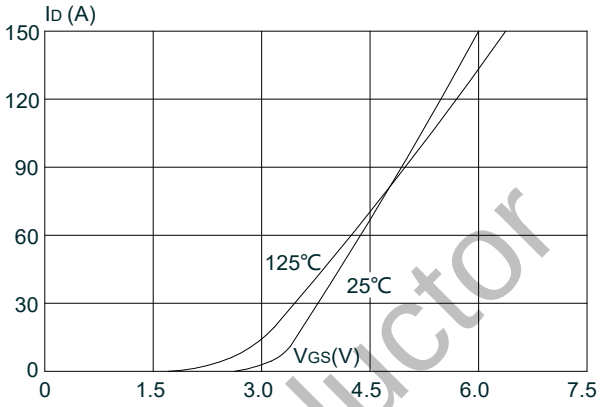


Figure 3: On-resistance vs. Drain Current

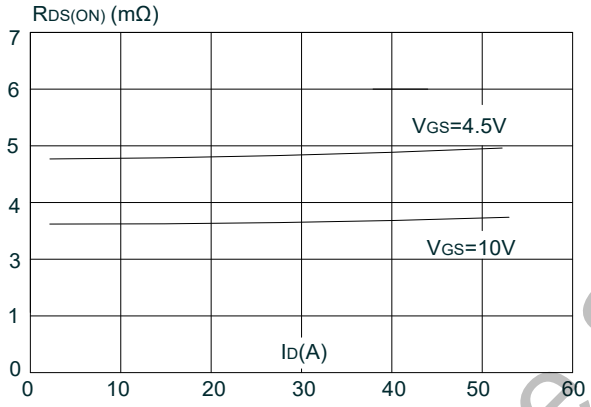


Figure 4: Body Diode Characteristics

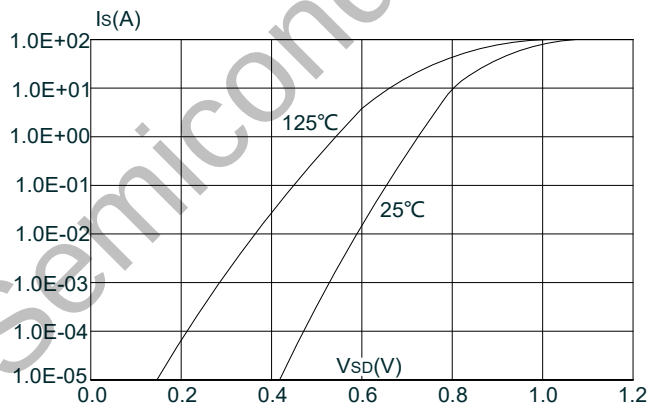


Figure 5: Gate Charge Characteristics

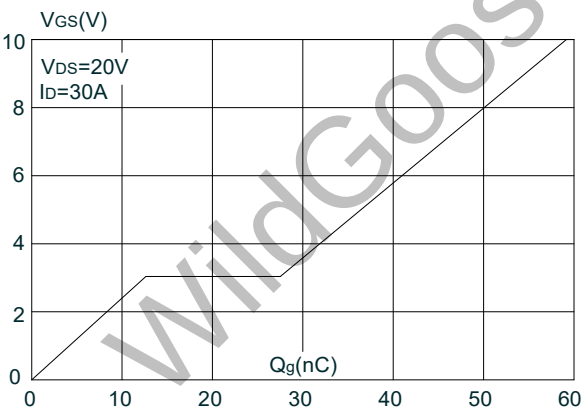
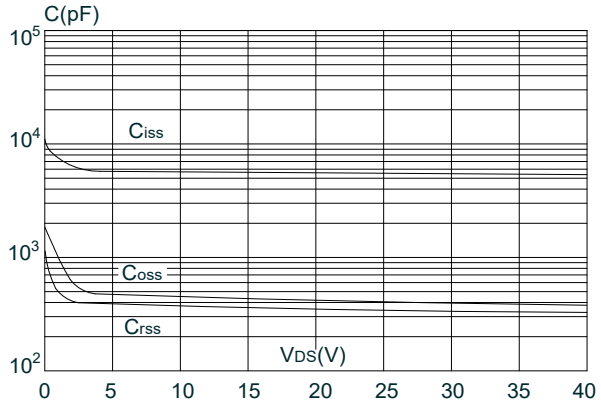


Figure 6: Capacitance Characteristics



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Typical Performance Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

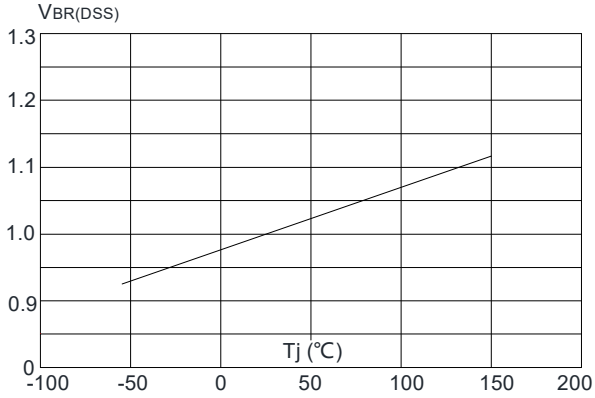


Figure 8: Normalized on Resistance vs. Junction Temperature

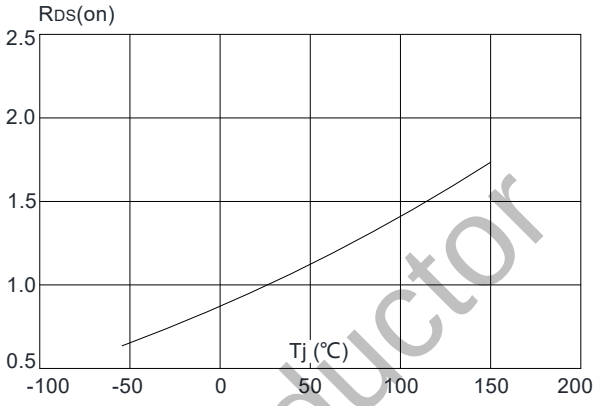


Figure 9: Maximum Safe Operating Area

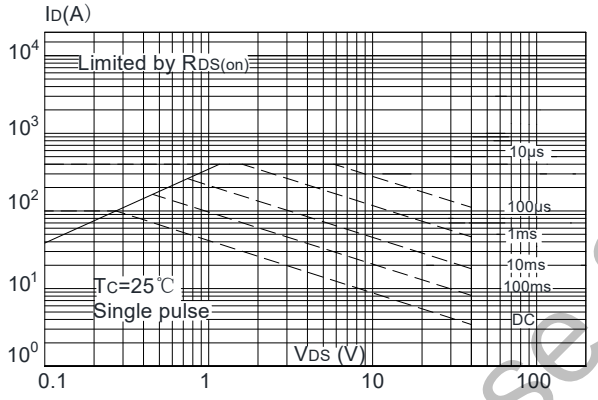


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

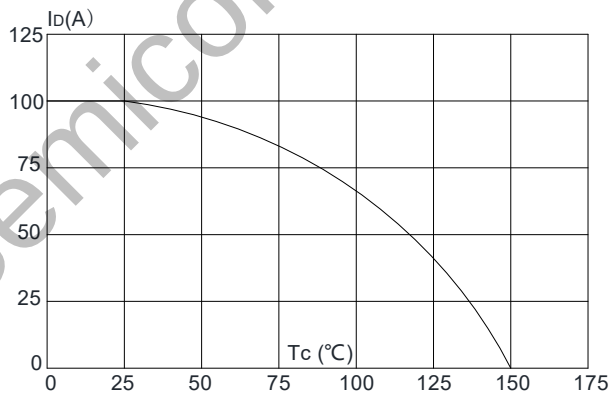
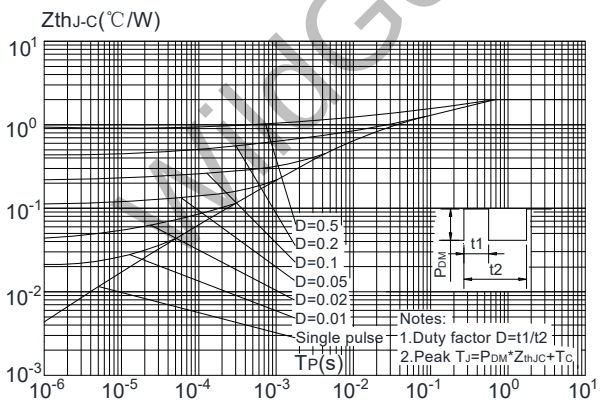


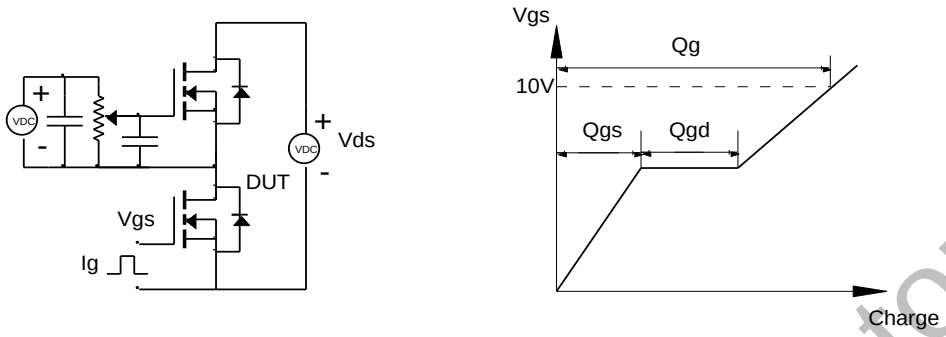
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



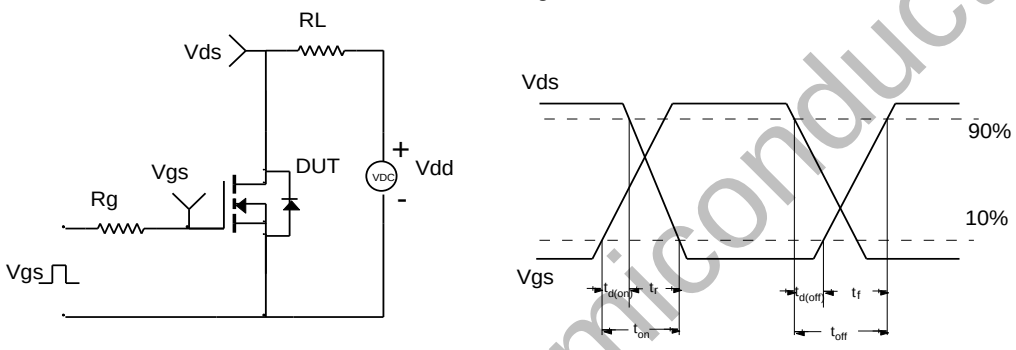
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Test Circuit

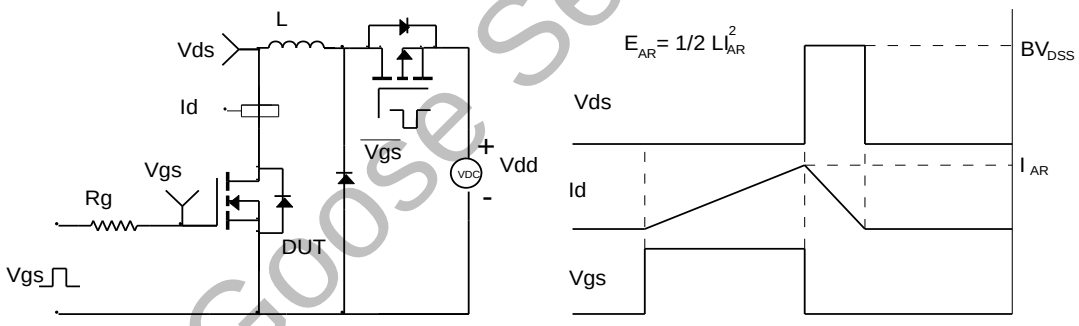
Gate Charge Test Circuit & Waveform



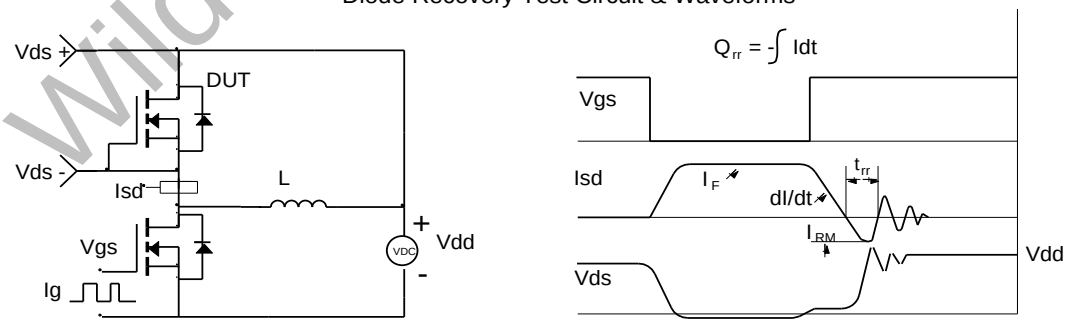
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

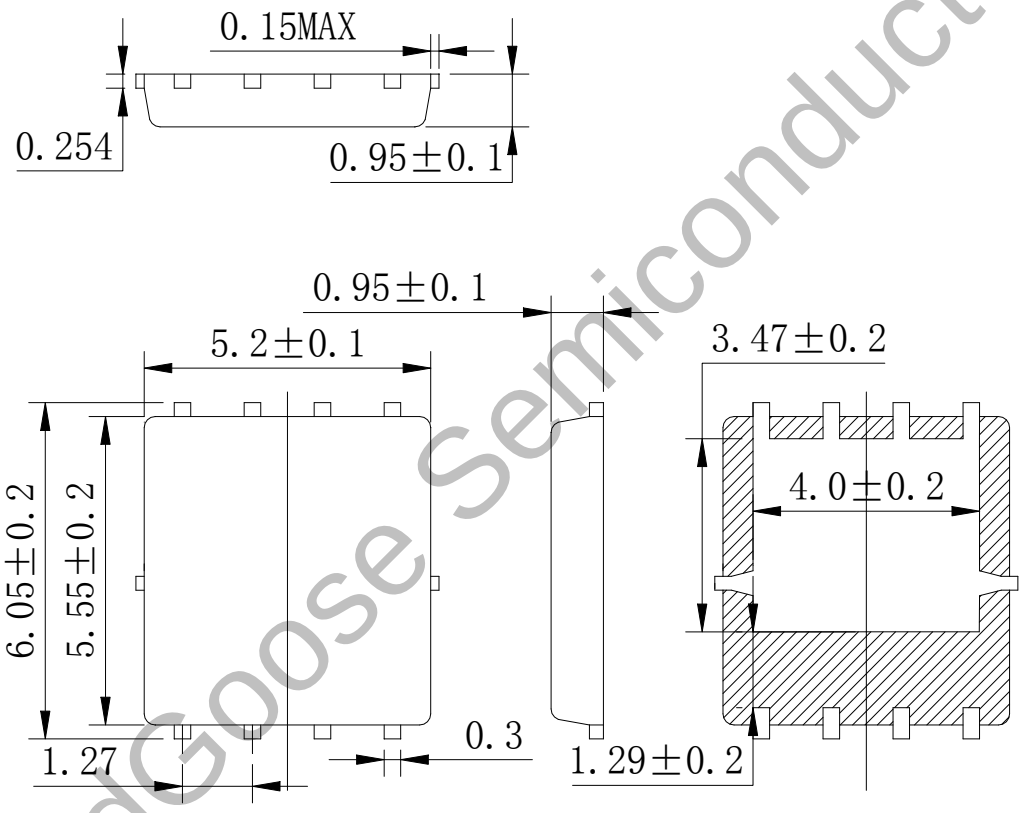


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Package Dimension

PDFN5X6-8L（模一）

Unit:mm

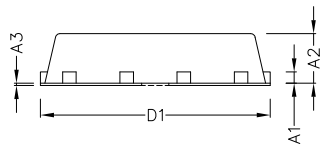


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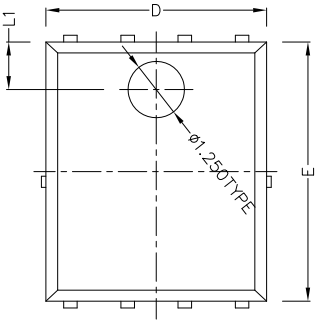
Package Dimension

PDFN5X6-8L（模二）

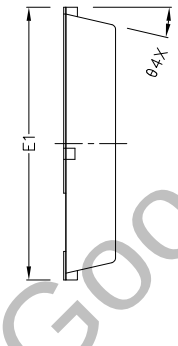
Unit:mm



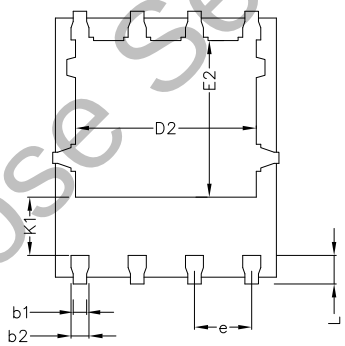
SIDE VIEW



TOP VIEW



SIDE VIEW



BOTTOM VIEW
OPTION 1

COMMON DIMENSIONS
(UNITS OF MEASURE IS mm)

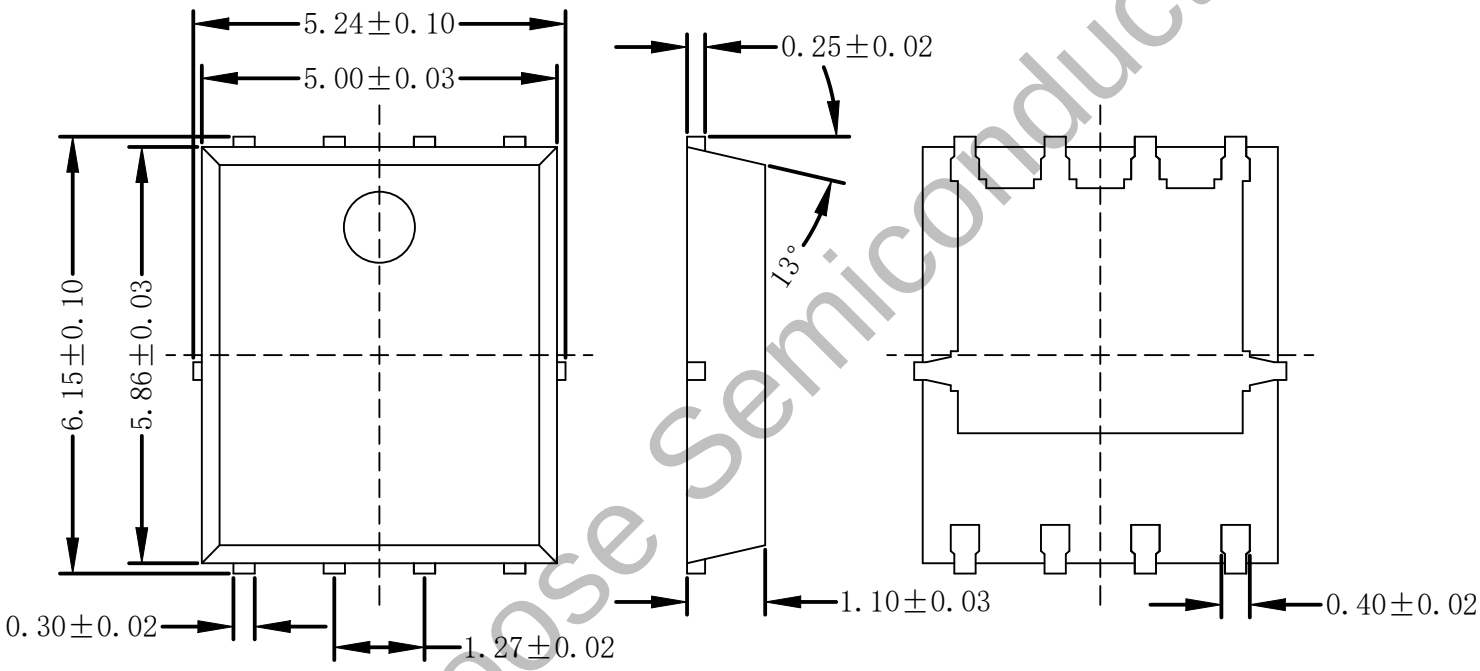
	MIN	NORMAL	MAX
A1		0.254 BSC	
A2	1.000	1.100	1.200
A3	0.005	–	0.020
b1	0.250	0.300	0.350
b2	0.350	0.400	0.450
D	4.600	4.900	5.000
D1	5.000	5.100	5.200
D2	3.910	4.010	4.110
D3	1.605	1.705	1.805
E	5.650	5.750	5.850
E1	5.950	6.050	6.150
E2	3.375	3.475	3.575
e		1.270 TYPE	
L	0.530	0.630	0.730
L1		1.00REF	
θ		13° TYPE	
K		0.600 REF	
K1		1.235 REF	

WildGoose Semiconductor

Package Dimension

PDFN5X6-8L（模三）

Unit:mm



技术要求：

1、本体为麻面
2、本体错位小于0.05mm
3、引脚毛刺小于0.05mm
4、长短脚小于0.10mm
5、单位：mm

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