WGN06V100

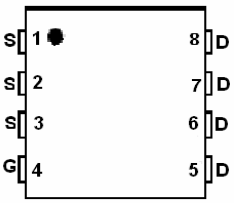
Features:

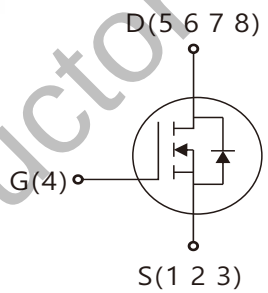
- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 36 nC (Typ.).
- ☐ VDSS=100 V,I_D=74A
- ☐ R_{DS}(on) : 6.4mΩ (Typ) @V_G=10V
- ☐ 100% Avalanche Tested

PDFN5X6-8L

RoHS COMPLIANT

Schematic diagram





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Absolute Maximum Ratings (T_A =25ºC unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_C = 25ºC	I_D	74	A
	T_C = 100ºC		46	
Pulsed Drain Current [2]		I_{DM}	296	A
Single Pulse Avalanche Energy L =0.3mH [3]		E_{AS}	96	mJ
Power Dissipation [4]	T_C = 25ºC	P_D	78	W
Operating Junction and Storage Temperature Range		T_J, T_{SGT}	-55 to 150	ºC

Thermal Resistance

Parameter		Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case	Steady-State	$R_{\theta JA}$	1.6	ºC/W
Thermal Resistance, Junction-to-Ambient	Steady-State	$R_{\theta JC}$	65	

Electrical Characteristics(T_J =25ºC unless otherwise noted)

Symbol	Parameter	Conditions		Value			Units
				Min	Typ	Max	
STATIC PARAMETERS							
BV_{DSS}	Drain-Source Breakdown Voltage	I_D = 250μA,V_{GS} = 0V		100	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 80V , V_{GS} = 0V	T_J =25ºC	--	--	1	μA
			T_J =125ºC	--	--	100	
I_{GSS}	Gate-Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V		--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA		1.2	2.0	2.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS} = 10V, I_D = 20A		--	6.4	7.7	mΩ
g_{FS}	Forward Transconductance	V_{DS} = 5V, I_D = 20A		30	--	--	S
DYNAMIC PARAMETERS [5]							
C_{iss}	Input Capacitance	V_{GS} =0V, V_{DS} = 50V, f =1MHz		--	1959	--	pF
C_{oss}	Output Capacitance			--	731	--	
C_{rss}	Reverse Transfer Capacitance			--	30	--	
SWITCHING PARAMETERS [5]							
Q_g(10V)	Total Gate Charge	V_{GS} =10V,V_{DS} = 50V, I_D = 20A			36		nC
Q_{gs}	Gate Source Charge				7.8		
Q_{gd}	Gate Drain Charge				8.8		
$t_{D(on)}$	Turn-On Delay Time	V_{GS} =10V,V_{DS} = 50V R_L = 2.5Ω , R_{GEN} = 3Ω			10.7		ns
t_r	Turn-On Rise Time				21		
$t_{D(off)}$	Turn-Off Delay Time				31		
t_f	Turn-Off Fall Time				10.7		
t_{rr}	Body Diode Reverse Recovery Time	I_F = 20A, dI_F/dt = 100A/μs			40		ns
Q_{rr}	Body Diode Reverse Recovery Charge				41		nC

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Notes:

1. Computed continuous current assumes the condition of T_{J_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. This single-pulse measurement was taken under T_{J_Max} = 150°C.
3. E_{AS} of 96 mJ is based on starting T_J = 25°C, L = 3mH, I_{AS} = 8A, V_{GS} = 10V, V_{DD} = 50V; 100% test at L = 0.1mH, I_{AS} = 39A.
4. The power dissipation P_D is based on T_{J_Max} = 150°C.
5. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

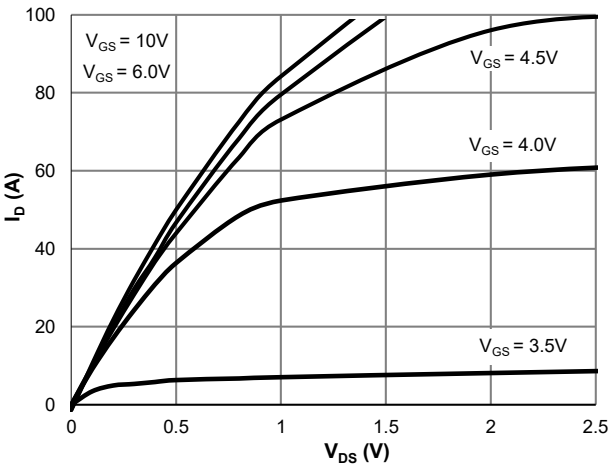

Figure 1: Saturation Characteristics

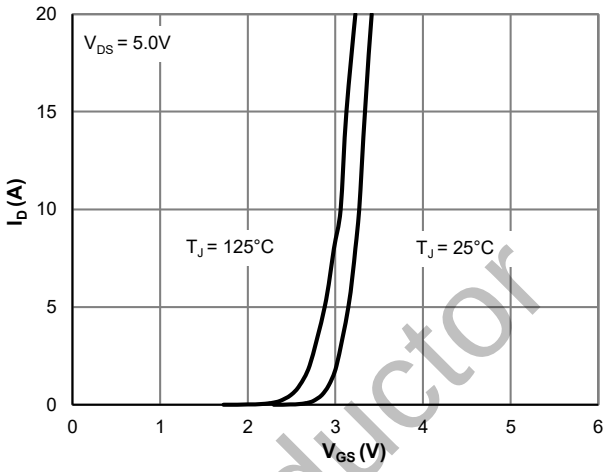

Figure 2: Transfer Characteristics

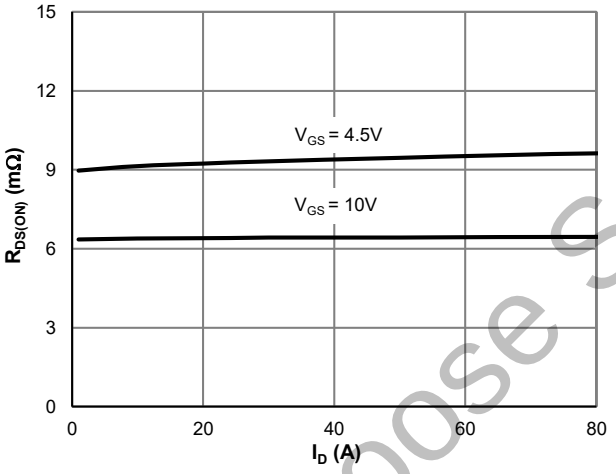

Figure 3: $R_{DS(ON)}$ vs. Drain Current

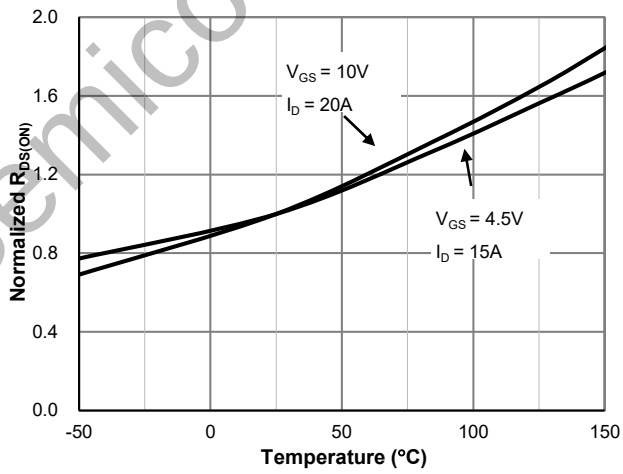

Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

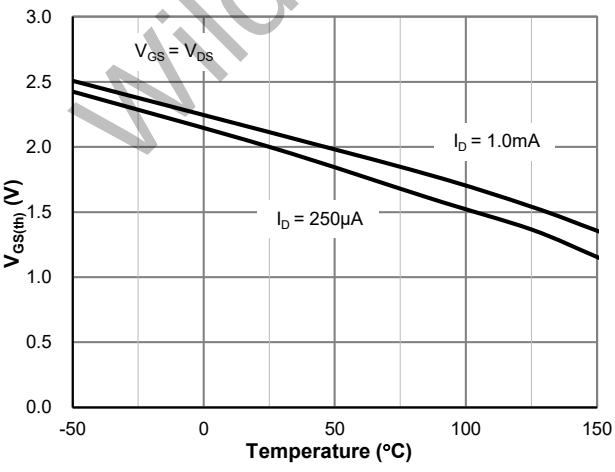

Figure 5: $V_{GS(th)}$ vs. Junction Temperature

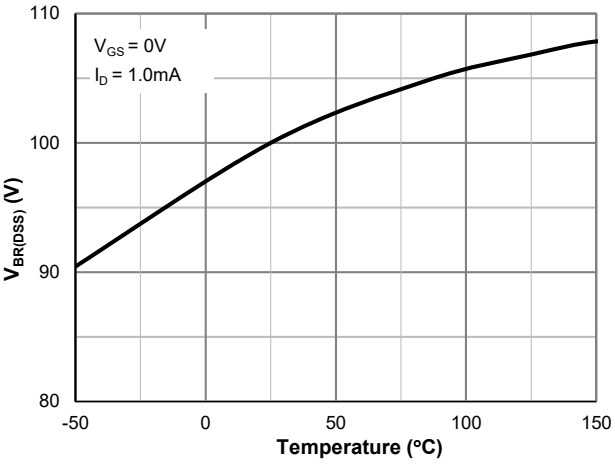

Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

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Typical Characteristics

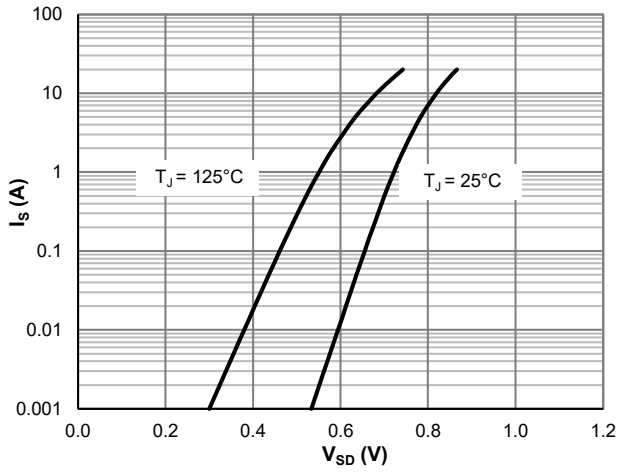

Figure 7: Body-Diode Characteristics

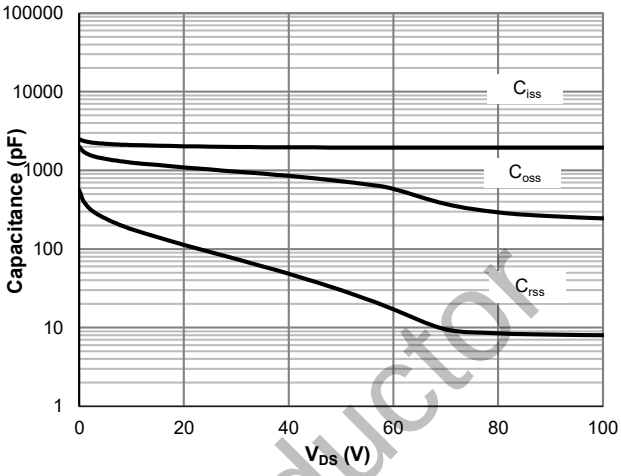

Figure 8: Capacitance Characteristics

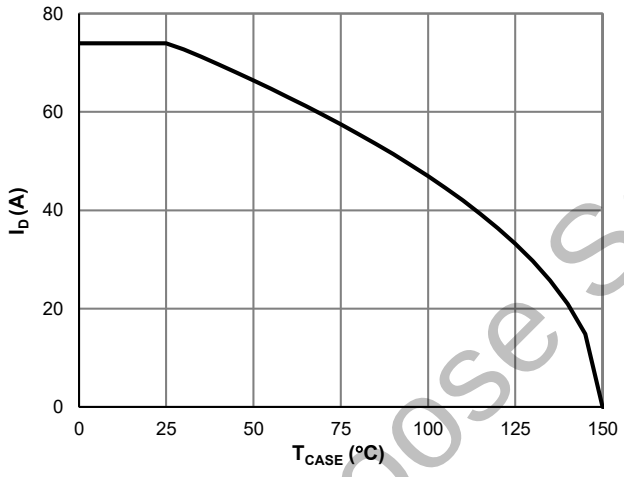

Figure 9: Current De-rating

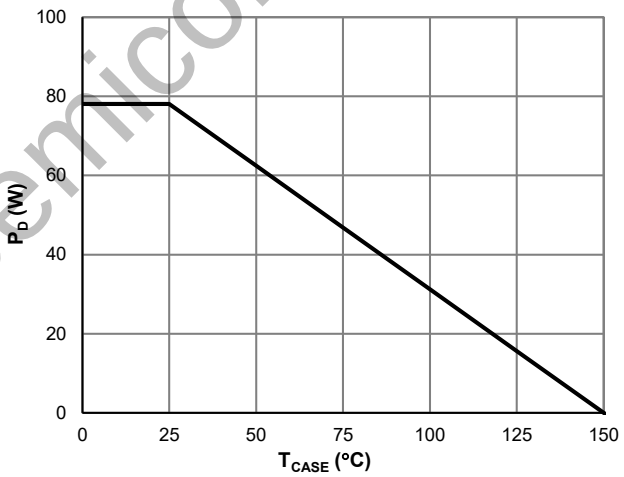

Figure 10: Power De-rating

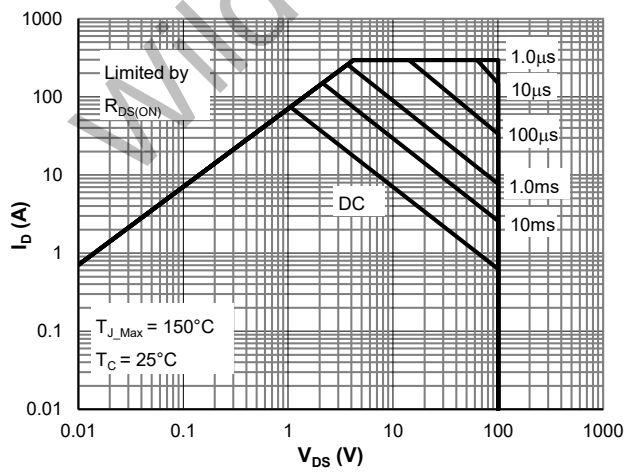

Figure 11: Maximum Safe Operating Area

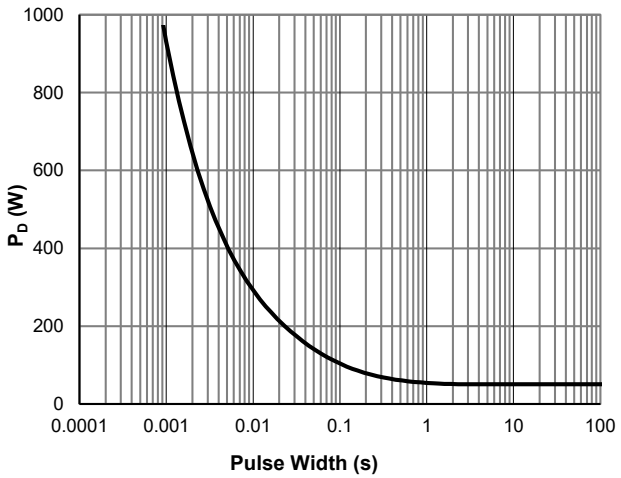

Figure 12: Single Pulse Power Rating, Junction-to-Case

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Typical Characteristics

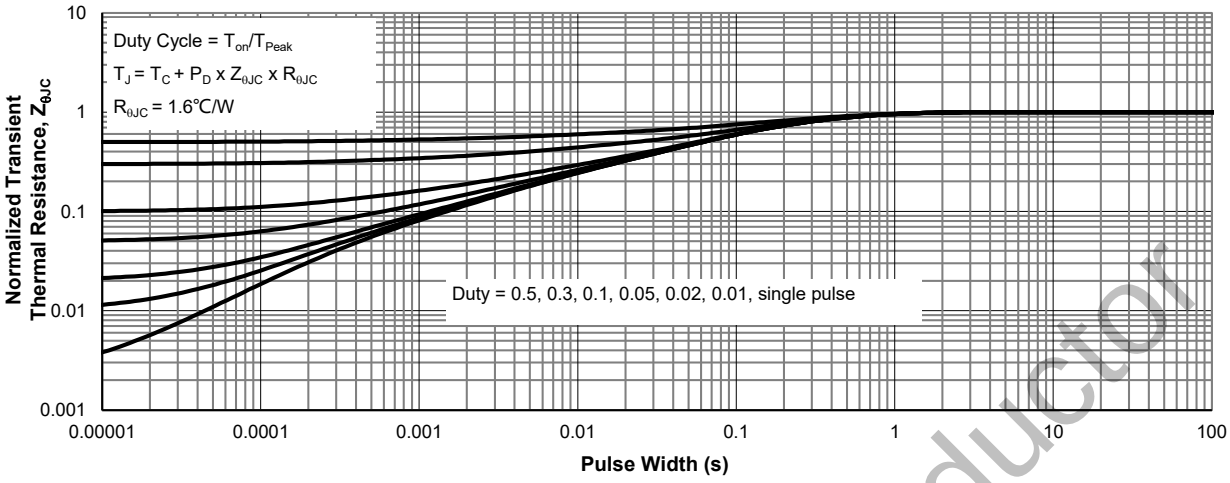

Figure 13: Normalized Maximum Transient Thermal Impedance

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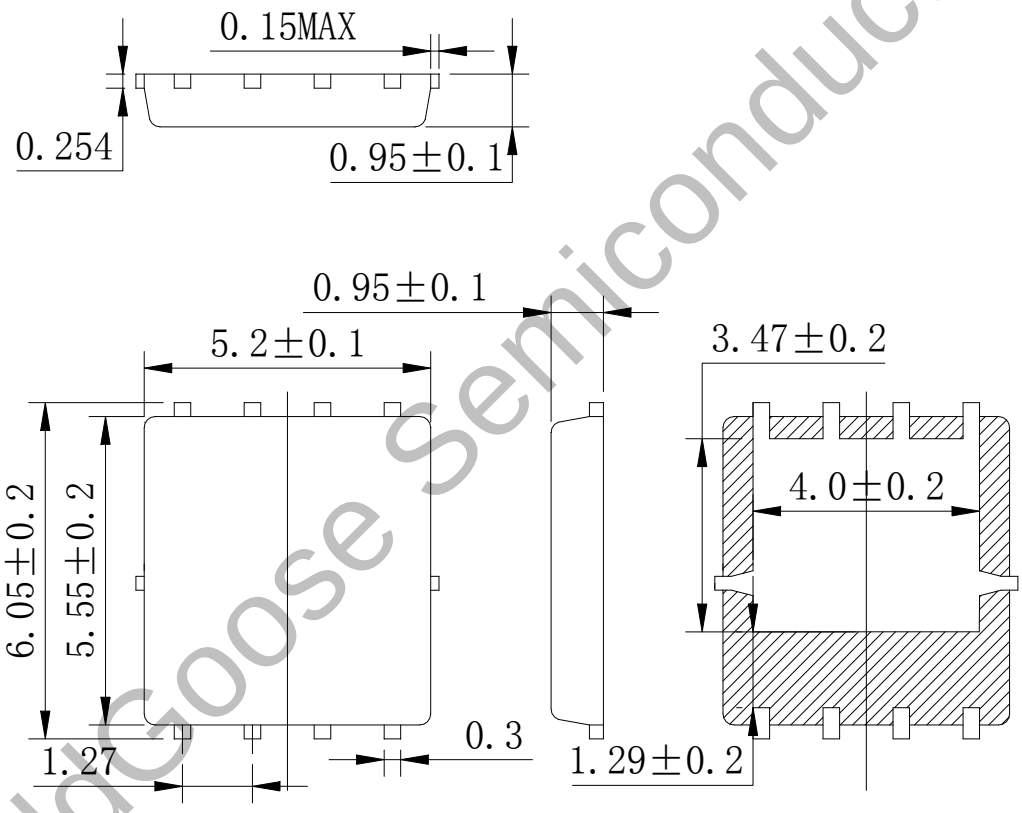
Package Dimension

PDFN5X6-8L（模一）

Unit:mm

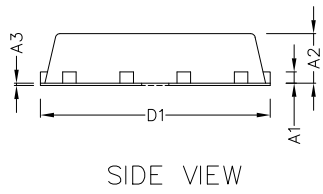


WildGoose Semiconductor

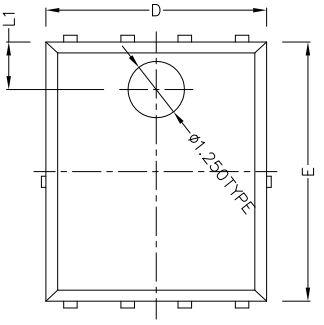
Package Dimension

PDFN5X6-8L（模二）

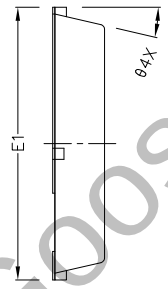
Unit:mm



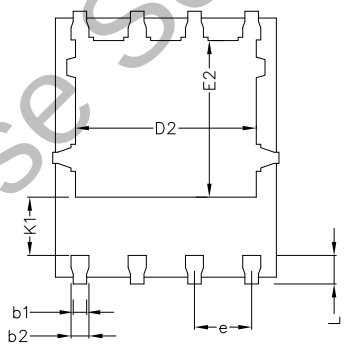
SIDE VIEW



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	

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