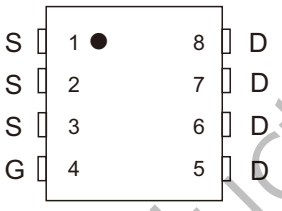
-30V P-Channel Enhancement Mode MOSFET

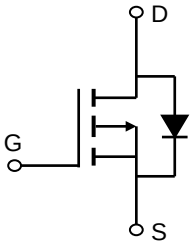
WGN011P30

PDFN5X6-8L

RoHS COMPLIANT

Schematic diagram





Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg=46nC (Typ.).
- ☐ VDSS=-30V,I_D=-50A
- ☐ R_{DS}(on) : 11mΩ (Max) @V_G=10V
- ☐ 100% Avalanche Tested

Absolute Maximum Ratings (T_C=25℃,unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	-30	V
Gate-Source Voltage (V_{GS}=0V,static)	V_{GS}	±20	V
Continuous Drain Current (T_C=25℃)	I_D	-50	A
Continuous Drain Current (T_C=100℃)		-35	A
Pulesd Drain Current	I_{DM}	-200	A
Avalanche Energy, Single Pulsed	E_{AS}	92	mJ
Maximum Power Dissipation (T_C=25℃)	P_D	26	W
Maximum Power Dissipation (T_C=100℃)		14	W
Operating,Storage Temperature Range	T_J,T_{STG}	-55~150	℃

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	-	3.3	-	℃/ W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	-	55	-	℃/ W

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Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V	-	-	-1	μA
Gate -Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS},I_D=-250μA	-1.0	-1.5	-2.0	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-12A	-	8.5	11	mΩ
		V_{GS}=-4.5V,I_D=-7A	-	12	15	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	V_{DS}=-15V	-	1780	-	pF
Output capacitance	C_{oss}	V_{GS}=0V	-	235	-	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	200	-	
Gate Resistance	R_g	f=1MHz	-	2.5	-	Ω
Total Gate Charge	Q_g	V_{DS}=-15V	-	46	-	nC
Gate Source Charge	Q_{gs}	V_{GS}=-10V	-	1.0	-	
Gate Drain Charge	Q_{gd}	I_D=-15A	-	1.4	-	
Turn-on delay Time	$t_{d(on)}$	V_{GS}=-10V	-	8	-	ns
Rise time	t_r	V_{DS}=-15V	-	27	-	
Turn-off delay Time	$t_{d(off)}$	R_L=1Ω	-	68	-	
Fall time	t_f	R_G=3Ω	-	39	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_{SD}=-1A	-	-0.7	-1	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_{SD}=-4A	-	13.5	-	ns
Reverse Recovery Charge	Q_{rr}	d_i/d_t=100A/μs	-	3.7	-	nC

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Electrical Characteristics Diagrames

Figure 1. On-Regin Characteristics

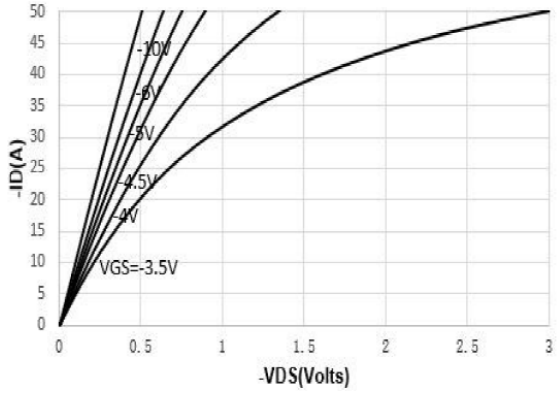


Figure 2. Transfer Characteristics

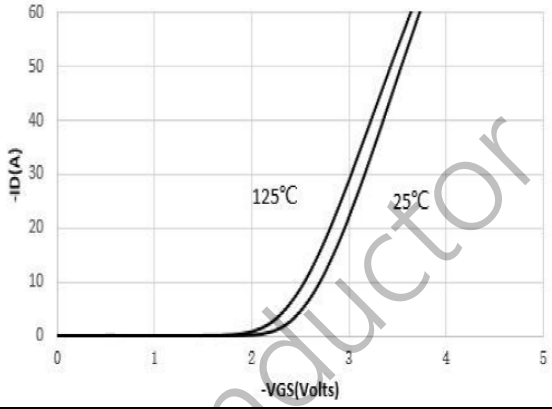


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

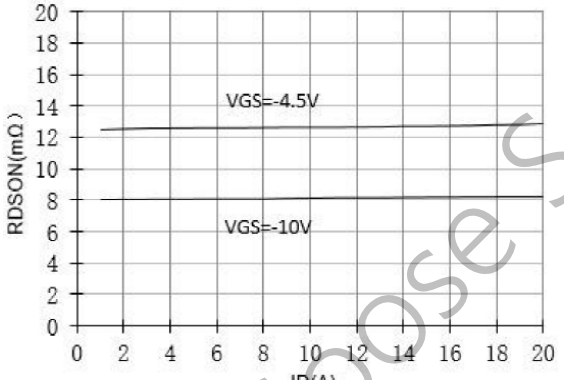


Figure 4. On-Resistance vs. Junction Temperature

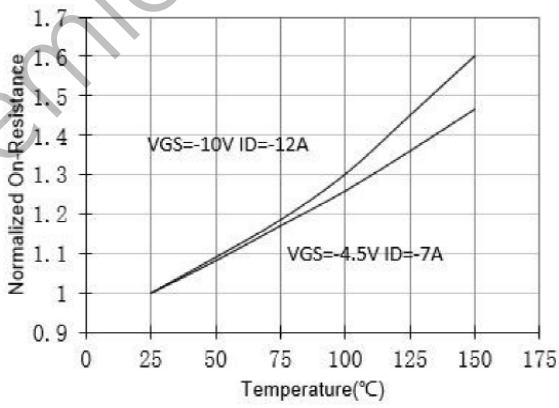


Figure 5. On-Resistance vs. Gate-Source Voltage

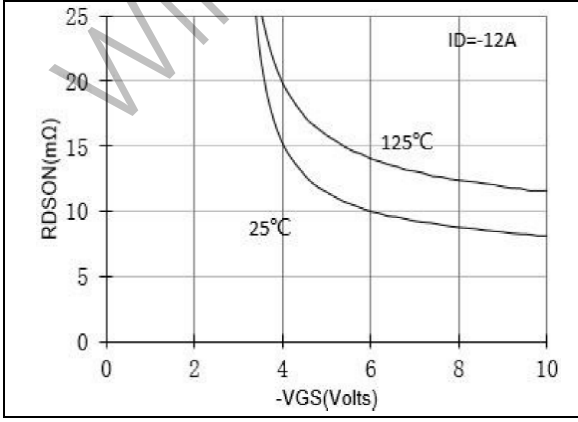
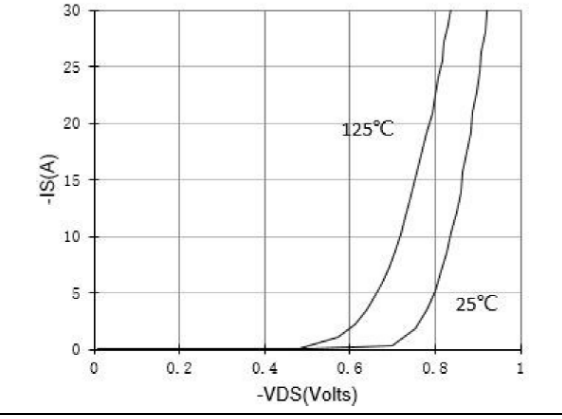


Figure 6. Body-Diode Characteristics



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Electrical Characteristics Diagrames

Figure 7. Gate-Charge Characteristics

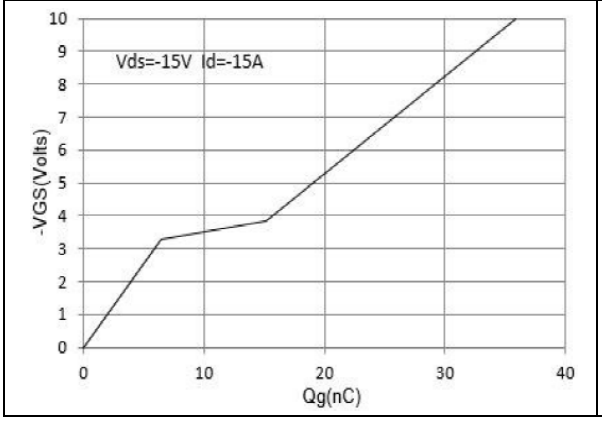


Figure 8. Capacitance Characteristics

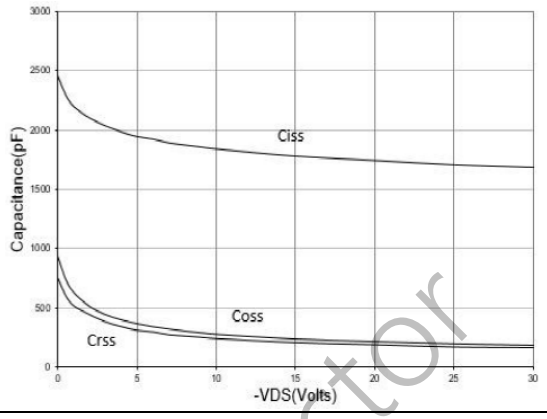


Figure 9. Maximum Forward Biased Safe Operating Area

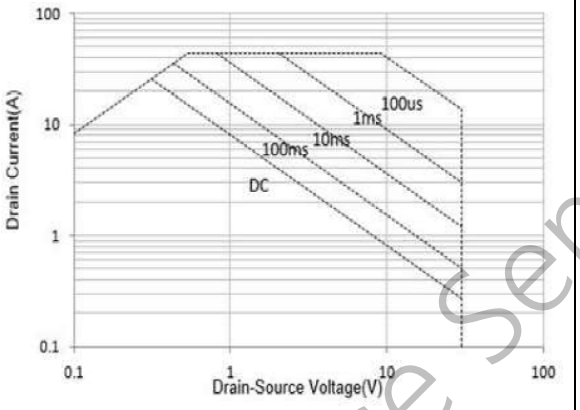


Figure 10. Single Pulse Power Rating Junction-to-Ambient

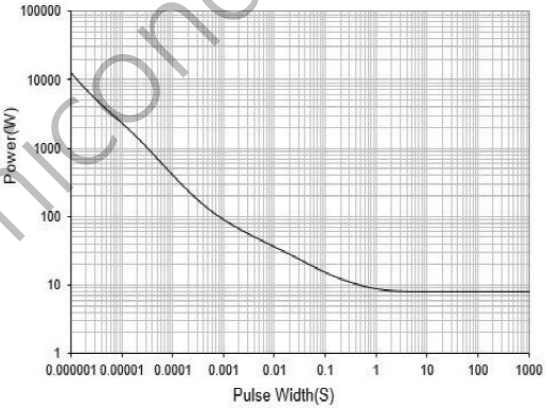
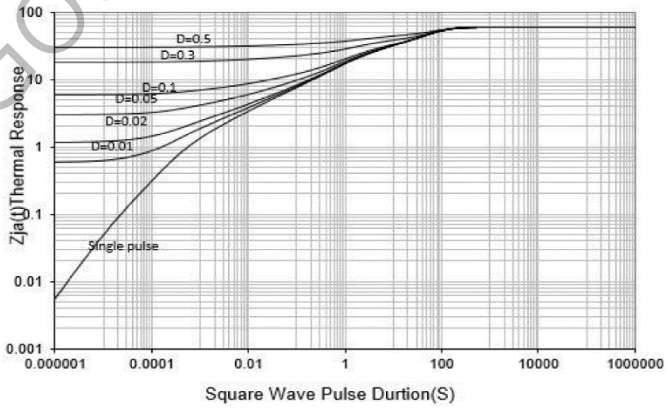


Figure 11. Normalized Maximum Transient Thermal Impedance

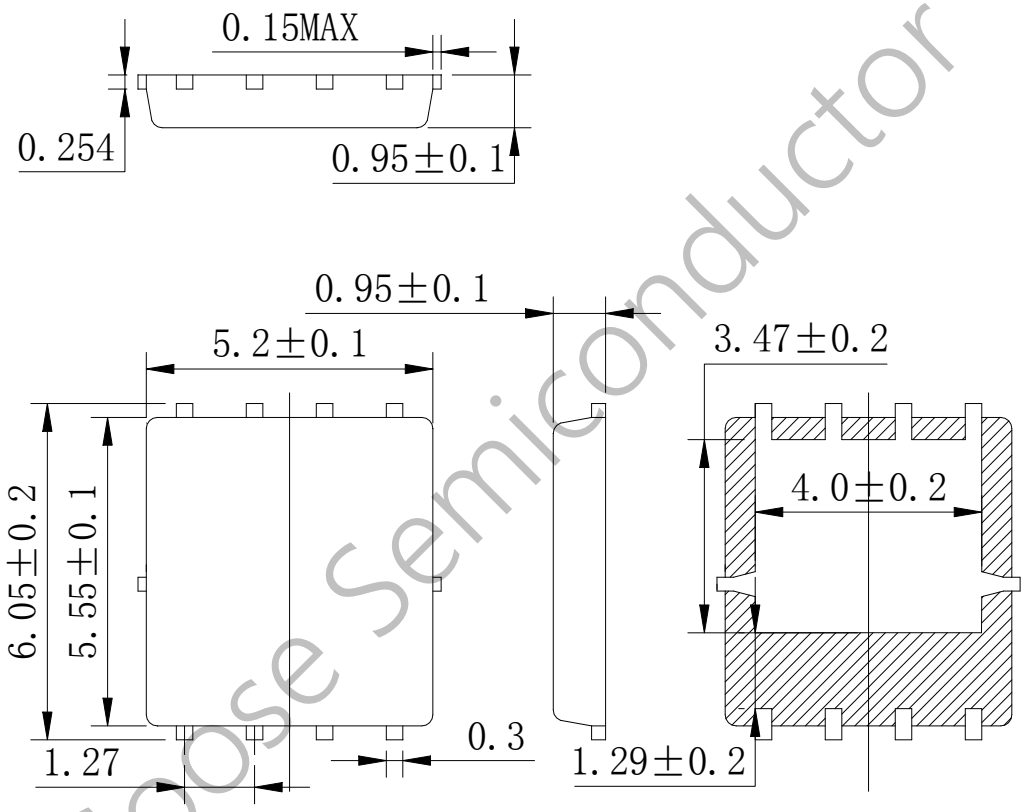


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Package Dimension

PDFN5X6-8L

Unit:mm



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