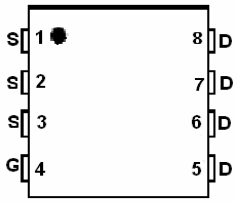
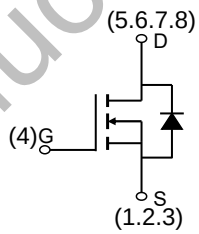
WGN07V60S

PDFN5X6-8L

RoHS COMPLIANT

Schematic diagram





Features:

- ☐ Advanced Trench Technology.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg=26nC (Typ.).
- ☐ BVDSS=60V,I_D=55A
- ☐ R_{DS}(on) : 6.5mΩ (Typ) @V_G=10V
- ☐ 100% Avalanche Tested

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	55	A
Drain Current-Continuous(T_C=100℃)	I_D (100℃)	42.9	A
Pulsed Drain Current	I_{DM}	220	A
Maximum Power Dissipation	P_D	65	W
Derating factor		0.52	W/℃
Single pulse avalanche energy (Note 5)	E_{AS}	350	mJ
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

Thermal Characteristic

Thermal Resistance,Junction-to-Case (Note 2)	$R_{\theta JC}$	1.92	℃/W
Device on PCB，6cm² cooling area (Note 6)	$R_{\theta JA}$	50	℃/W

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Electrical Characteristics (T_C=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	60		-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.2	1.4	2.4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	6.5	7.5	mΩ
		V_{GS}=4.5V, I_D=20A	-	7.2	9.8	
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=25A		60	-	S
Dynamic Characteristics						
Input Capacitance	C_{lss}	V_{DS}=30V,V_{GS}=0V, F=1.0MHz	-	2000	-	PF
Output Capacitance	C_{oss}		-	315	-	PF
Reverse Transfer Capacitance	C_{rss}		-	9.9	-	PF
Switching Characteristics (Note 2)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=30V,I_D=25A V_{GS}=10V,R_G=1.6Ω	-	8	-	nS
Turn-on Rise Time	t_r		-	2	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	29	-	nS
Turn-Off Fall Time	t_f		-	4	-	nS
Total Gate Charge	Q_g	V_{DS}=30V,I_D=25A, V_{GS}=10V	-	34.8	-	nC
Gate-Source Charge	Q_{gs}		-	7		nC
Gate-Drain Charge	Q_{gd}		-	5.3		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=25A	-		1.2	V
Diode Forward Current	I_S		-	-	55	A
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F =25A di/dt = 100A/μs	-	38	-	nS
Reverse Recovery Charge	Qrr		-	48	-	nC

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Notes:

1. EAS condition : Tj=25℃,V_{DD}=30V,V_G=10V,L=0.5mH,Rg=25Ω
2. Guaranteed by design, not subject to production
3. These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsin k, assuming a maximum junction temperature of TJ(MAX)=150° C. The SOA curve provides a single pulse rating.

Typical Electrical and Thermal Characteristics

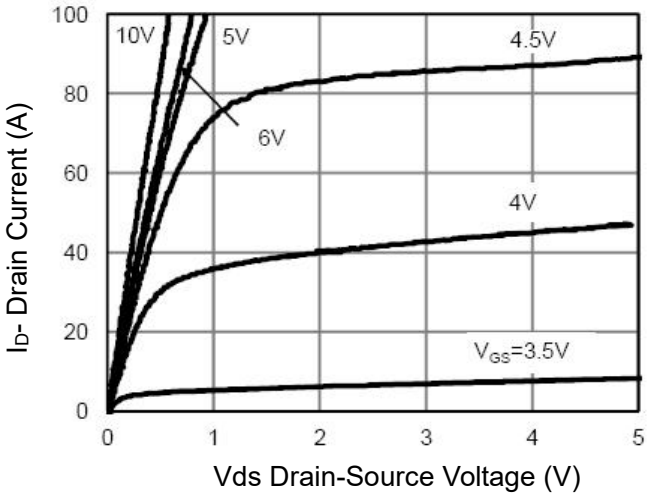


Figure 1 Output Characteristics

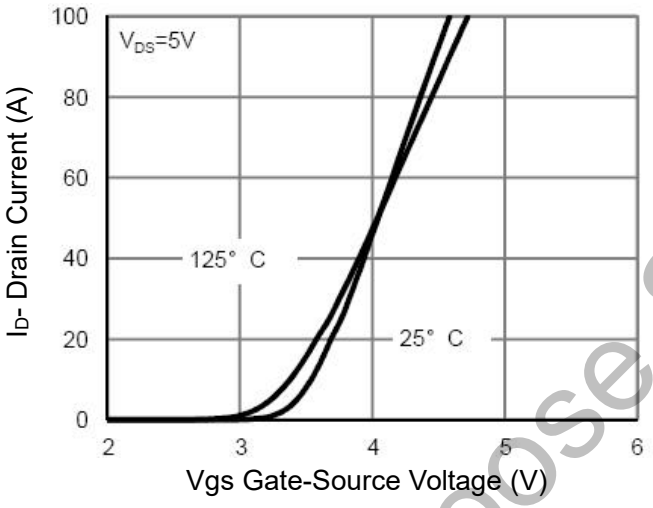


Figure 2 Transfer Characteristics

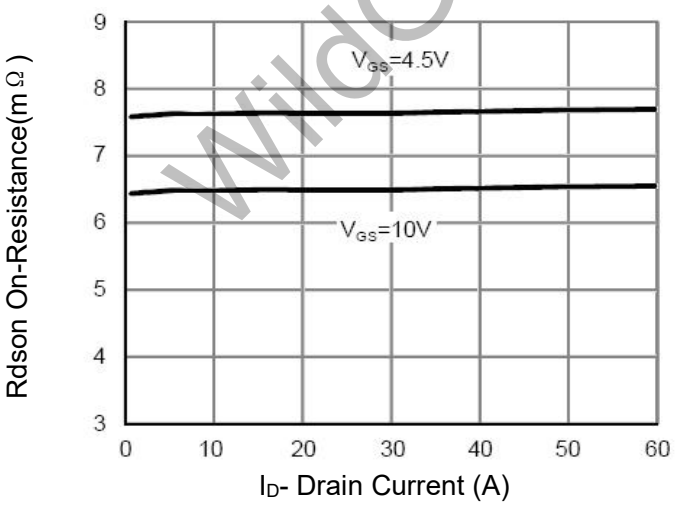


Figure 3 Rdson- Drain Current

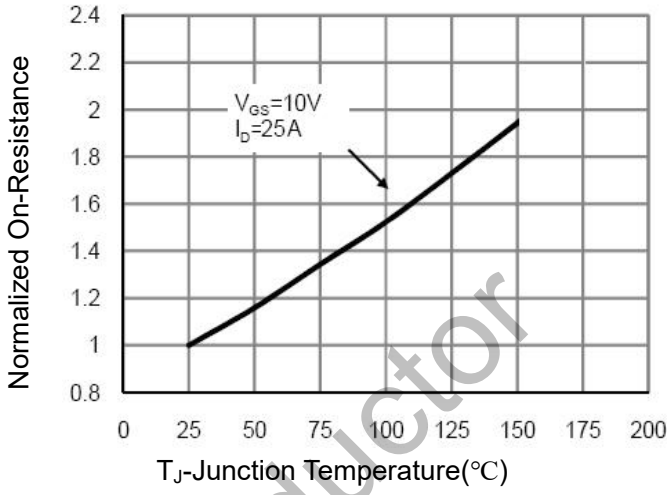


Figure 4 Rdson-Junction Temperature

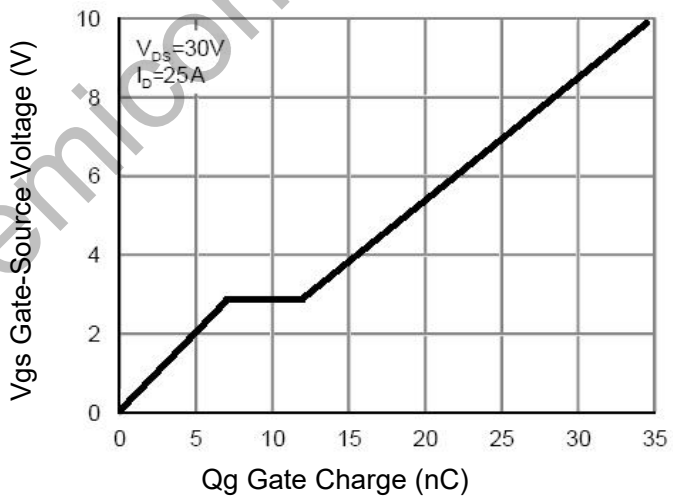


Figure 5 Gate Charge

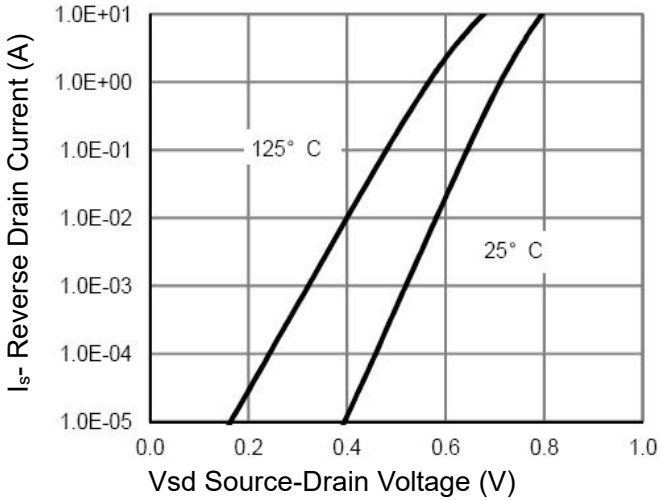


Figure 6 Source- Drain Diode Forward

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Typical Electrical and Thermal Characteristics

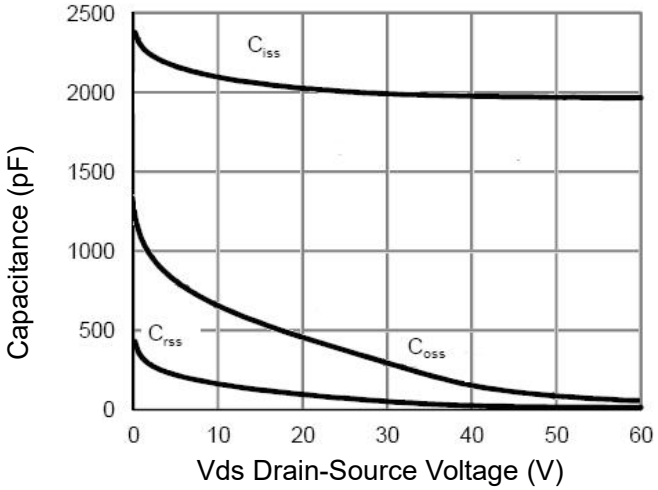


Figure 7 Capacitance vs Vds

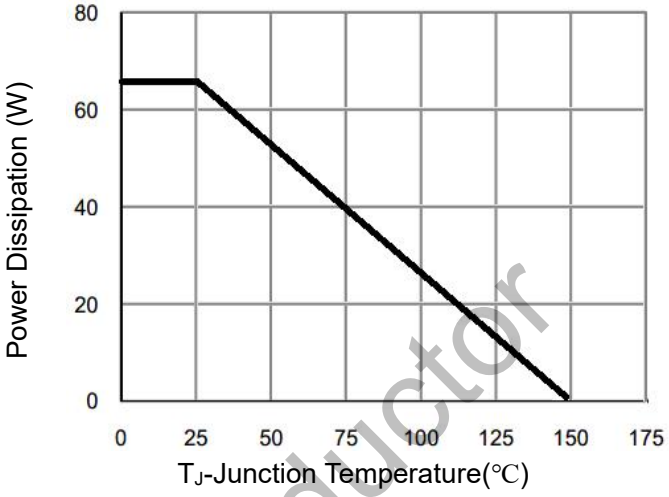


Figure 9 Power De-rating

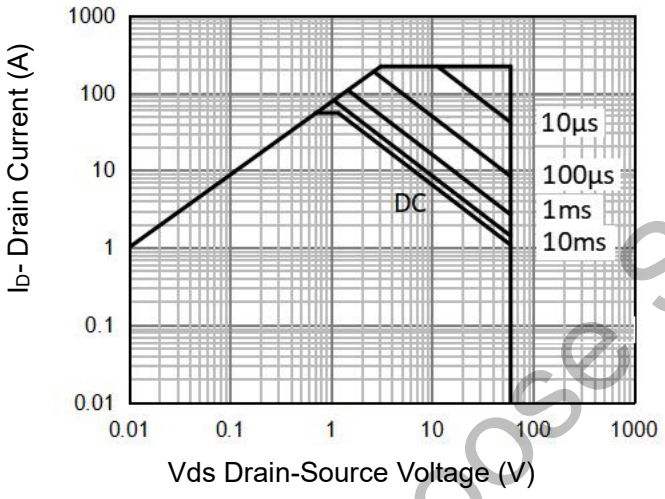


Figure 8 Safe Operation Area(Note 3)

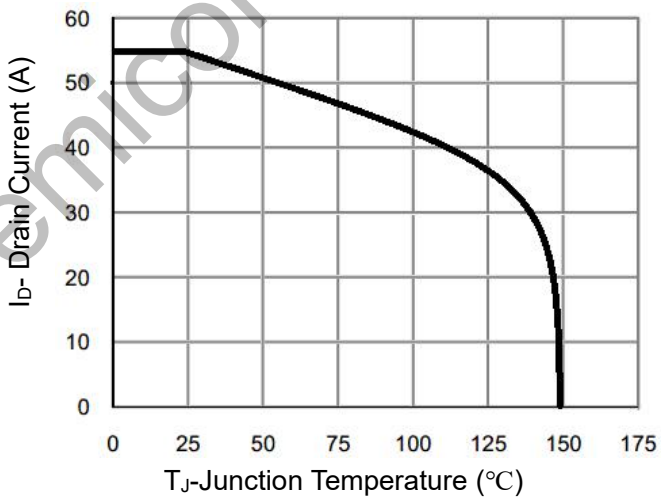


Figure 10 Current De-rating

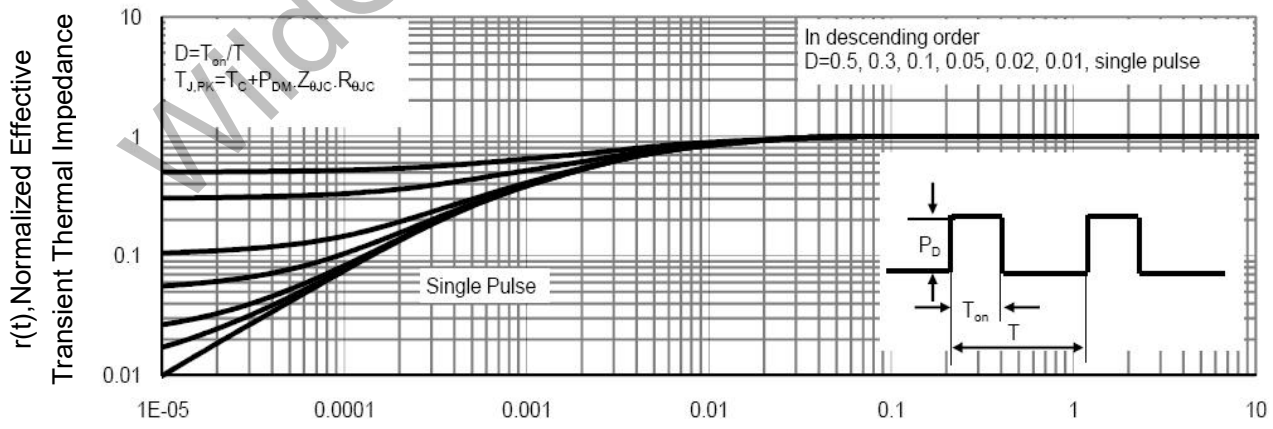


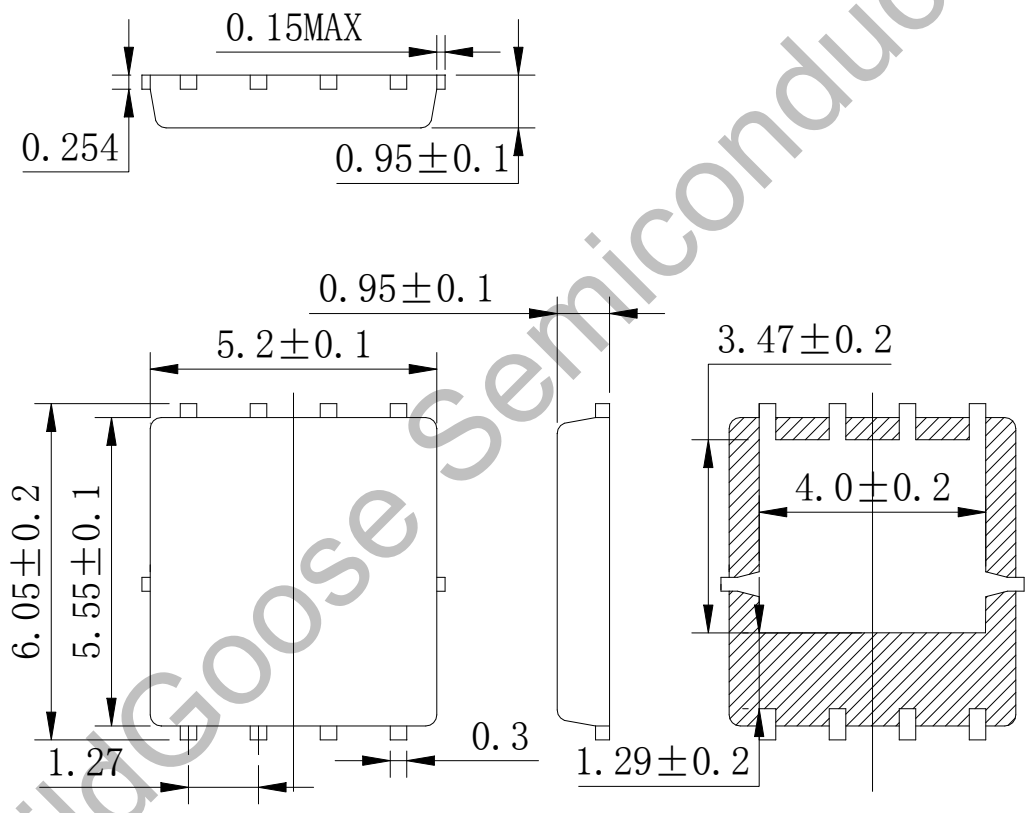
Figure 11 Normalized Maximum Transient Thermal Impedance

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Package Dimension

PDFN5X6-8L

Unit:mm



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