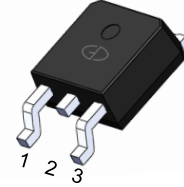


900mΩ,800V (D-S) Super Junction Power MOSFET

Features

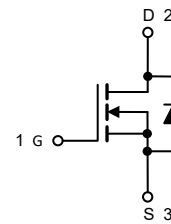
- 100% Avalanche Tested
- Extremely Low Losses with Low FOM $R_{ds(on)} \cdot Q_g$
- Halogen Free, Pb-Free
- RoHS Compliant



TO-252 (D-PAK)

Applications

- Solar inverter
- Telecom/Sever
- AC/DC power supply



Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	800	V
Gate Source Voltage	V_{GS}	± 30	V
Drain Current, Continuous $V_{GS}=10\text{V}$	I_D	$T_C=25^\circ\text{C}$	5
		$T_C=125^\circ\text{C}$	3
Drain Current, Pulsed (Note 1)	I_{DM}	20	A
Single Avalanche Energy (Note 2)	E_{AS}	225	mJ
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	62.5
		$T_C=100^\circ\text{C}$	25
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note 1: Single pulse; $t_p \leq 1\mu\text{s}$.

Note 2: $V_{DD} = 50\text{V}$, $I_D=3\text{A}$, $L = 0.5\text{mH}$, $R_G = 25\Omega$, starting $T_J = 25^\circ\text{C}$.

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	2	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Ambient (Note 3)	$R_{\theta JA}$	62	$^\circ\text{C/W}$

Note 3: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a 25°C still air environment.

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	800	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=800V, V_{GS}=0V$	--	--	1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2.5	--	4.5	V
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	--	--	± 100	nA
Drain-Source On-state Resistance (Note 4)	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.5A$	--	0.8	0.9	Ω
Total Gate Charge	Q_g	$V_{GS(off)}=0V, V_{GS(on)}=10V, V_{DD}=400V, I_D=4A$	--	10.7	--	nC
Gate- Source Charge	Q_{gs}		--	2.7	--	
Gate- Drain Charge	Q_{gd}		--	4.97	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=13V, V_{DD}=400V, I_D=2.2$	--	17.6	--	ns
Turn-on Rise Time	t_r		--	22.4	--	
Turn-off Delay Time	$t_{d(off)}$		--	64.2	--	
Turn-off Fall Time	t_f		--	28.2	--	
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V, f=1MHz$	--	541	--	pF
Output Capacitance	C_{oss}		--	31.6	--	
Reverse Transfer Capacitance	C_{rss}		--	1.3	--	

Reverse Diode Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Current, Continuous	I_{SD}	$T_C=25^\circ\text{C}$	--	--	5	A
Diode Forward Voltage (Note 4)	V_{SD}	$I_F=5A, V_{GS}=0V$	--	--	1.2	V
Reverse Recovery Time	T_{rr}	$V_R = 400V, I_F = 1A, di/dt = 100 A/\mu s$	--	181	--	ns
Reverse Recovery Charge	Q_{rr}		--	0.74	--	μC

Note 4: Pulse test; pulse width $\leq 380\mu s$, duty cycle $\leq 1\%$.

Typical Characteristics Curves ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 - Output Characteristics

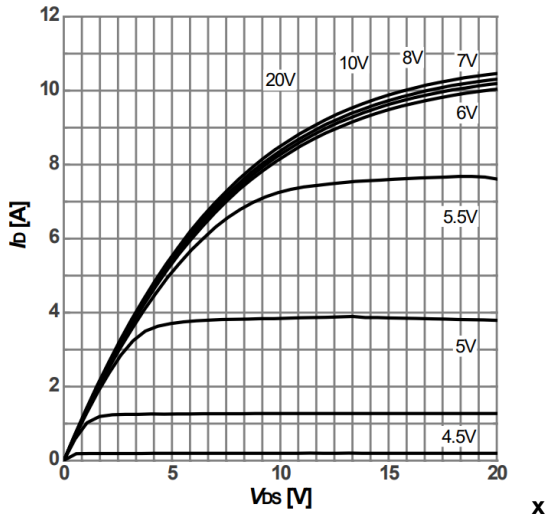


Fig.2 - Transfer Characteristics

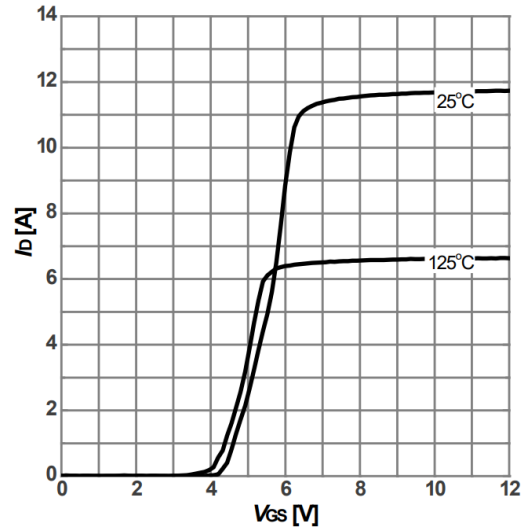


Fig.3 - Drain-Source On-Resistance

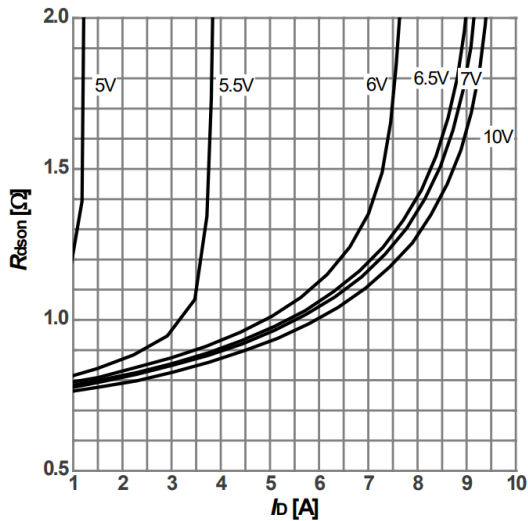


Fig.4 - Normalized On-Resistance

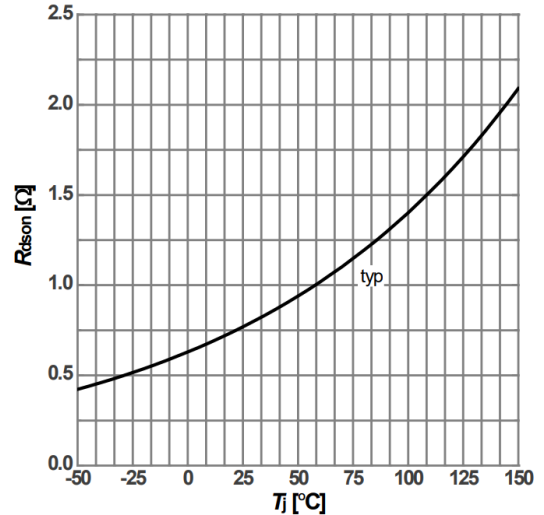


Fig.5 - Capacitance

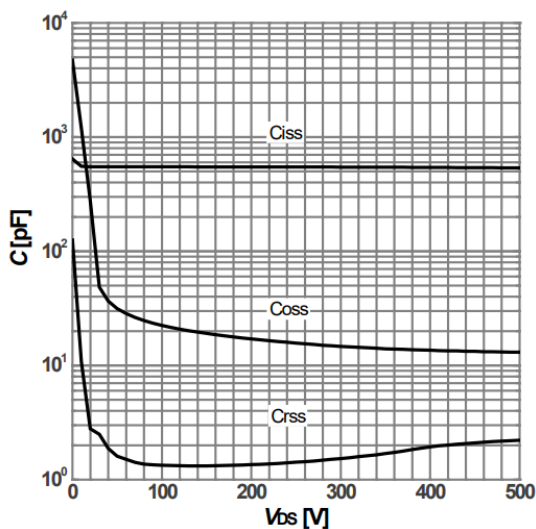
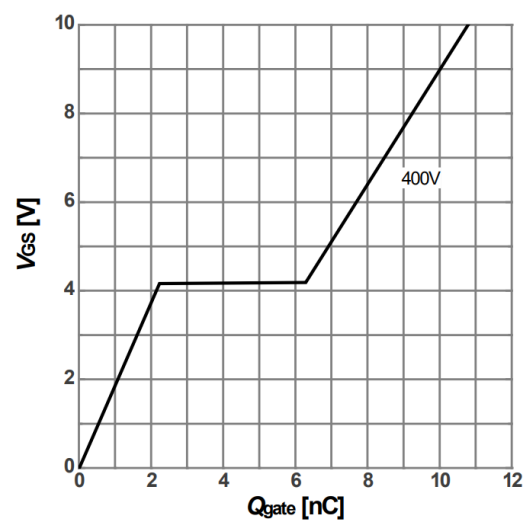


Fig.6 - Gate charge



Typical Characteristics Curves ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Fig.7 - Forward Characteristic

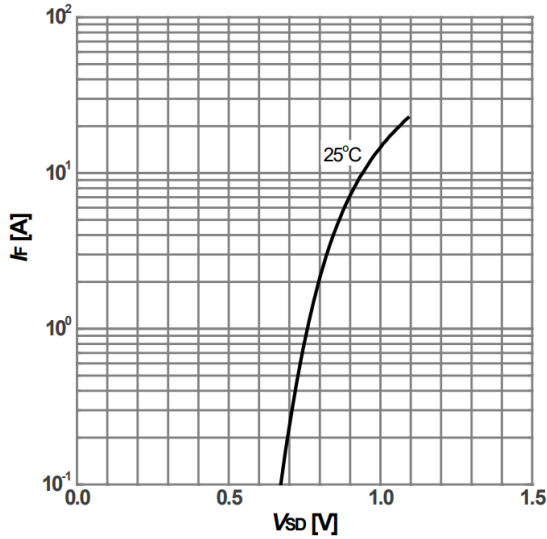


Fig.8 - Safe Operating Area

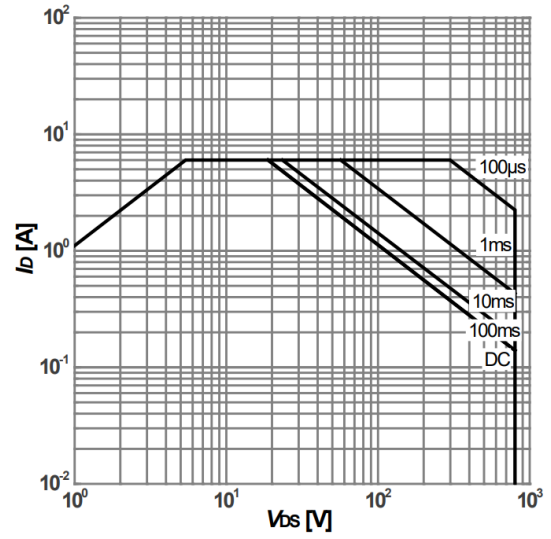


Fig.9 - Power Derating

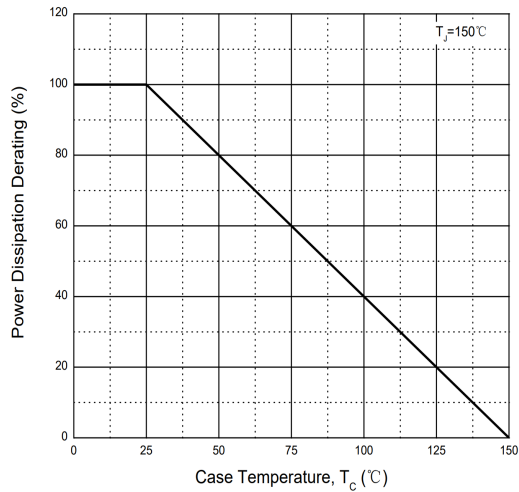
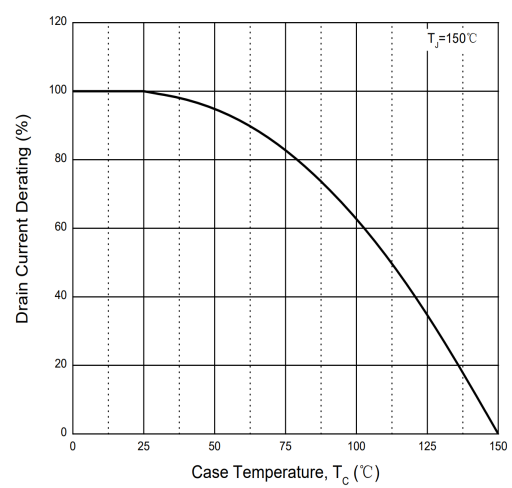
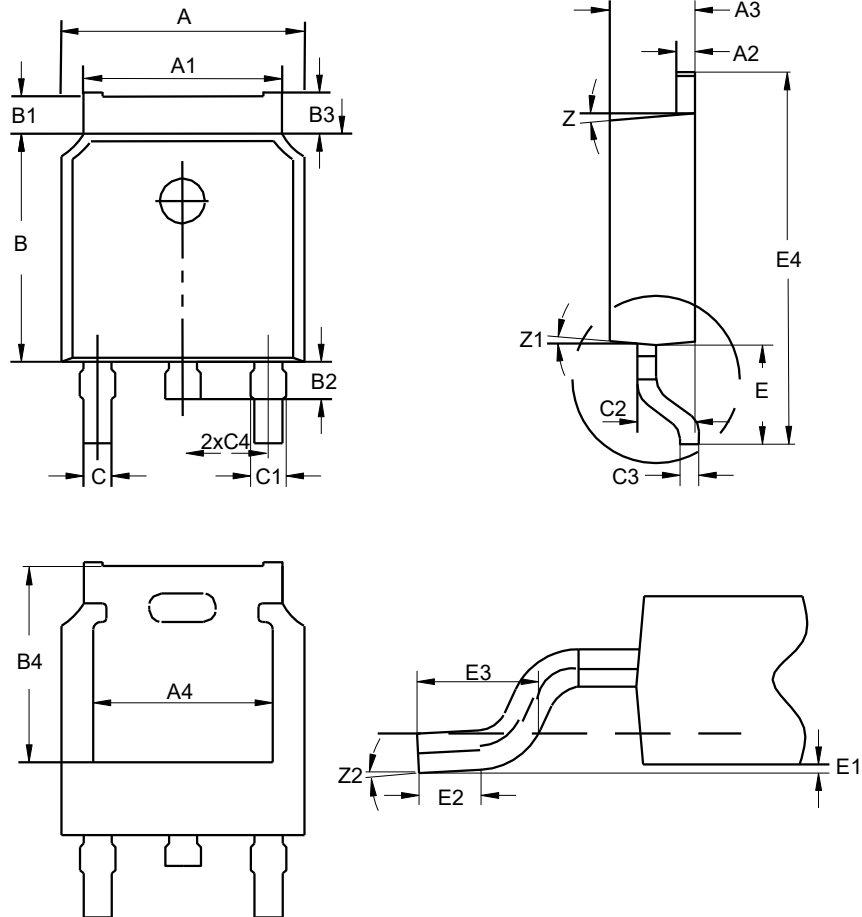


Fig.10 - Drain Current Derating



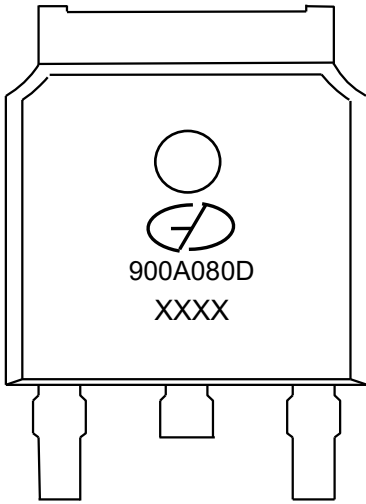
Package Outline Dimensions (Unit: millimeters)

TO-252(D-PAK)



TO-252							
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	6.34	6.54	6.74	C2	1.34	1.54	1.74
A1	5.2	5.3	5.4	C3	0.4	0.5	0.6
A2	0.4	0.5	0.6	C4	2.09	2.29	2.49
A3	2.08	2.28	2.48	E	2.6	2.9	3.2
A4	4.6	4.8	5.0	E1	0	-	0.15
B	5.8	6.1	6.4	E2	0.7	-	-
B1	0.82	1.02	1.22	E3	1.3	1.6	1.9
B2	0.8	1	1.2	E4	9.8	10.1	10.4
B3	0.9	1.1	1.3	Z	-	7°	-
B4	5.05	5.25	5.45	Z1	-	7°	-
C	0.66	0.76	0.86	Z2	0°	-	10°
C1	0.65	0.85	1.05	-	-	-	-

Marking Outline



Part Name: GMN900A080D	
1.	Logo Mark: 
2.	P/N Mark: 900A080D
3.	Date Code: XXXX

Revision History

Version	Date	Major Changes
Rev.A	2024.05.30	Official Release

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