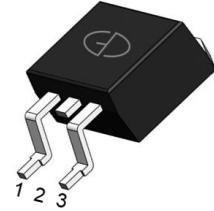


N-Channel 85V (D-S) Power MOSFET

Features

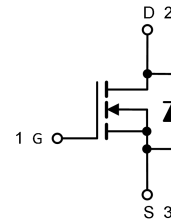
- 100% Avalanche Tested
- Extremely Low Losses with Low FOM $R_{ds(on)} \cdot Q_g$
- Halogen Free, Pb-Free
- RoHS Compliant



TO-263AB (D²PAK)

Applications

- DC/DC
- Motors, lamps
- Power switching



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

Parameter	Symbol	Value	Unit
Drain Source Voltage	V_{DS}	85	V
Gate Source Voltage	V_{GS}	± 20	V
Drain Current, Continuous $V_{GS}=10\text{V}$ (Note 1)	I_D	120	A
$T_C=25^\circ\text{C}$			
Drain Current, Pulsed (Note 2)	I_{DM}	480	A
Single Avalanche Energy	E_{AS}	440	mJ
Power Dissipation (Note 3)	P_D	220	W
$T_C=25^\circ\text{C}$			
Operating Junction/ Storage Temperature Range	T_J / T_{STG}	-55 to +150	$^\circ\text{C}$

Note 1: Calculated continuous current based on maximum allowable junction temperature.

Note 2: Repetitive rating; pulse width limited by max. junction temperature.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Junction-to-case (Note 3)	$R_{\theta JC}$	0.7	$^\circ\text{C/W}$
Thermal Resistance Junction-Ambient (Note 4)	$R_{\theta JA}$	58	$^\circ\text{C/W}$

Note 3: The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.

Note 4: The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	85	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V	--	--	1	uA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =250uA	2	--	4	V
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A	--	4.2	5.2	mΩ
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =40V, I _D =50A	--	61	--	nC
Gate Source Charge	Q _{gs}		--	21	--	
Gate Drain Charge	Q _{gd}		--	11	--	
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =40V, I _D =40A, R _{GEN} =3Ω	--	21.6	--	ns
Turn-on Rise Time	t _r		--	31.4	--	
Turn-off Delay Time	t _{d(off)}		--	44	--	
Turn-off Fall Time	t _f		--	18	--	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =40V, f=1MHz	--	4645	--	pF
Output Capacitance	C _{oss}		--	673	--	
Reverse Transfer Capacitance	C _{rss}		--	41	--	

Reverse Diode Characteristics (T _J =25°C unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	I _S	T _C =25°C	--	--	120	A
Reverse Recovery Time	T _{rr}	I _S =20A, di/dt = 100 A/μs	--	69	--	ns
Reverse Recovery Charge	Q _{rr}		--	141	--	nC

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

Fig.1 - Output Characteristics

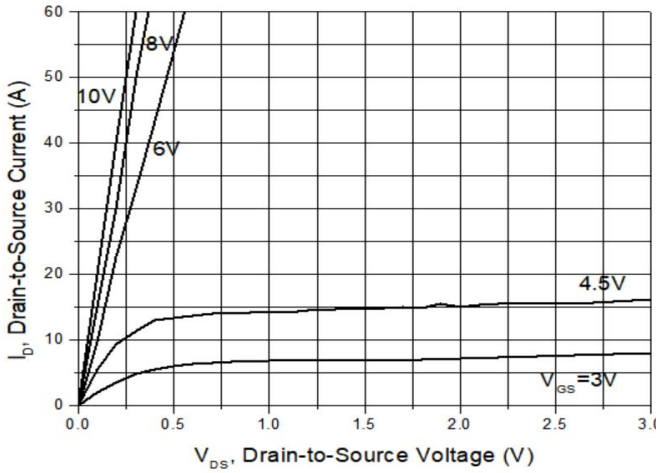


Fig.2 - Drain-to-Source Breakdown Voltage vs. Junction Temperature

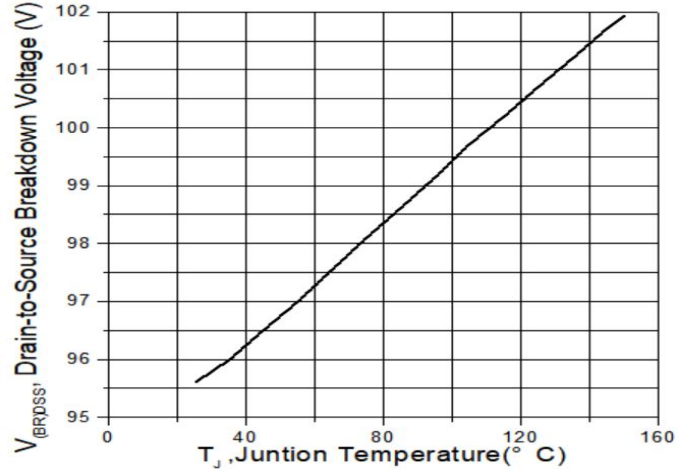


Fig.3 - Normalized On-Resistance vs. Junction Temperature

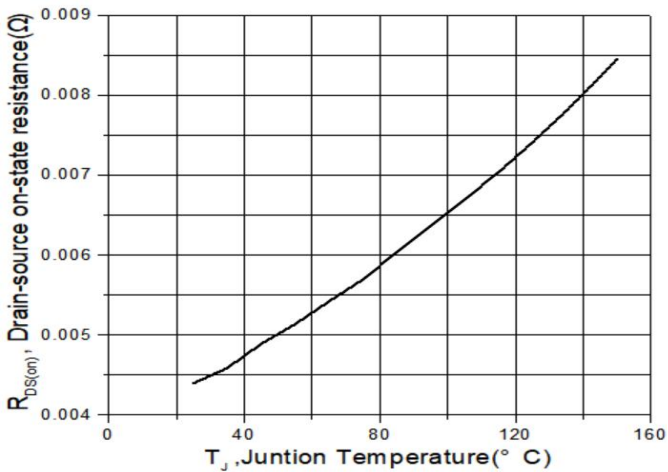


Fig.4 - Normalized $V_{GS(th)}$ vs. Junction Temperature

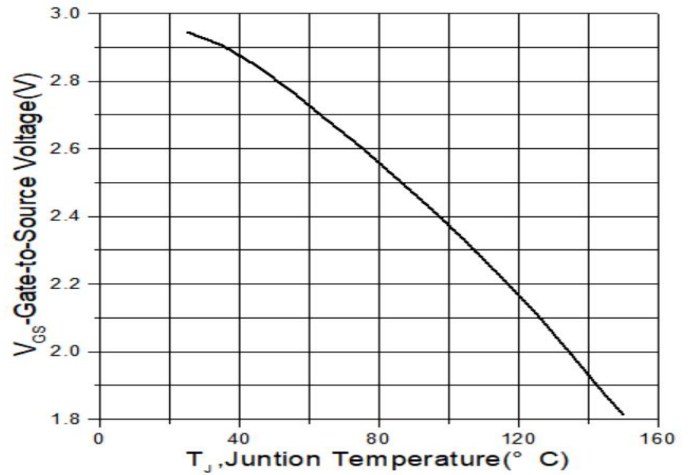


Fig.5 - Gate Charge Characteristics

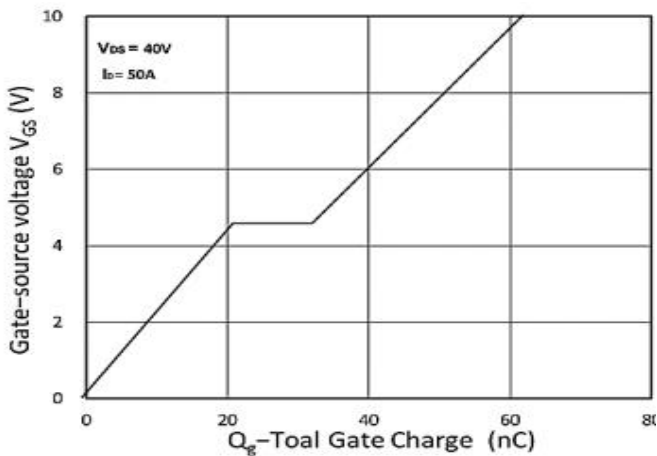
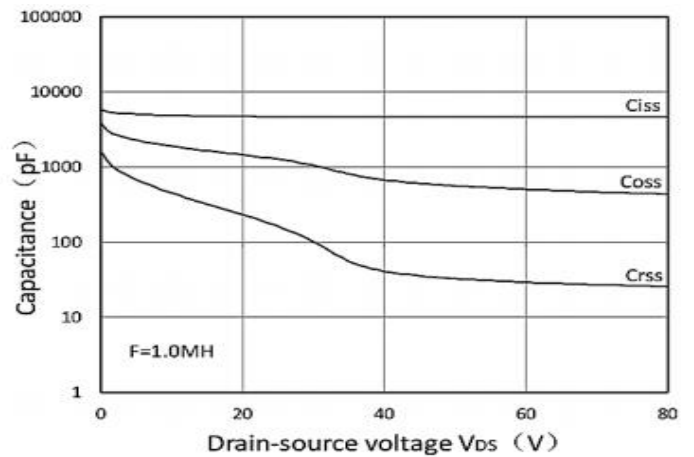


Fig.6 - Capacitance Characteristics



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

Fig.7 - Transfer Characteristics

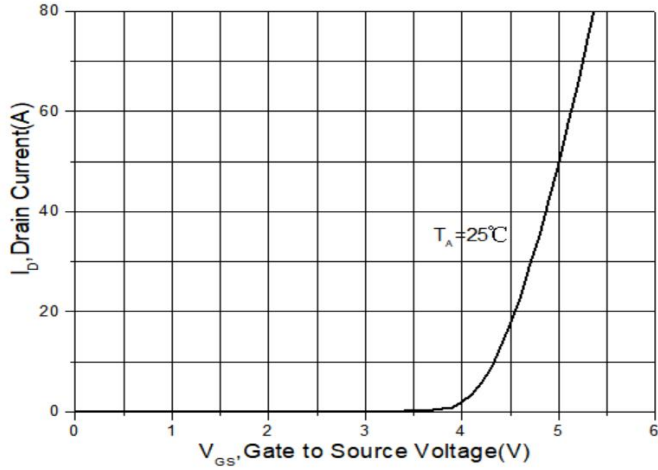


Fig.8 - Safe Operating Area

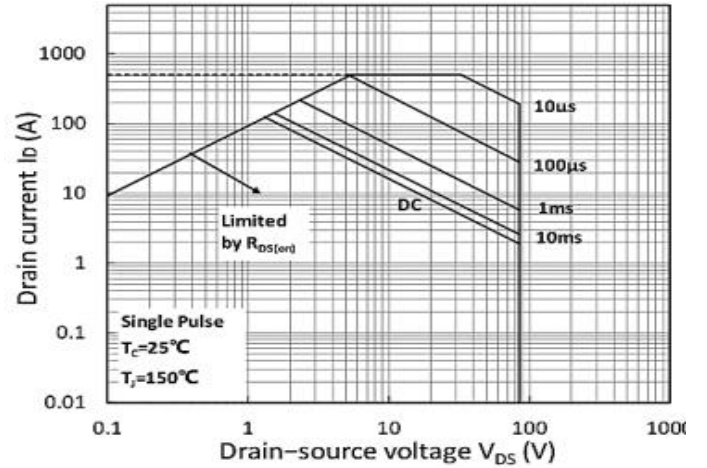
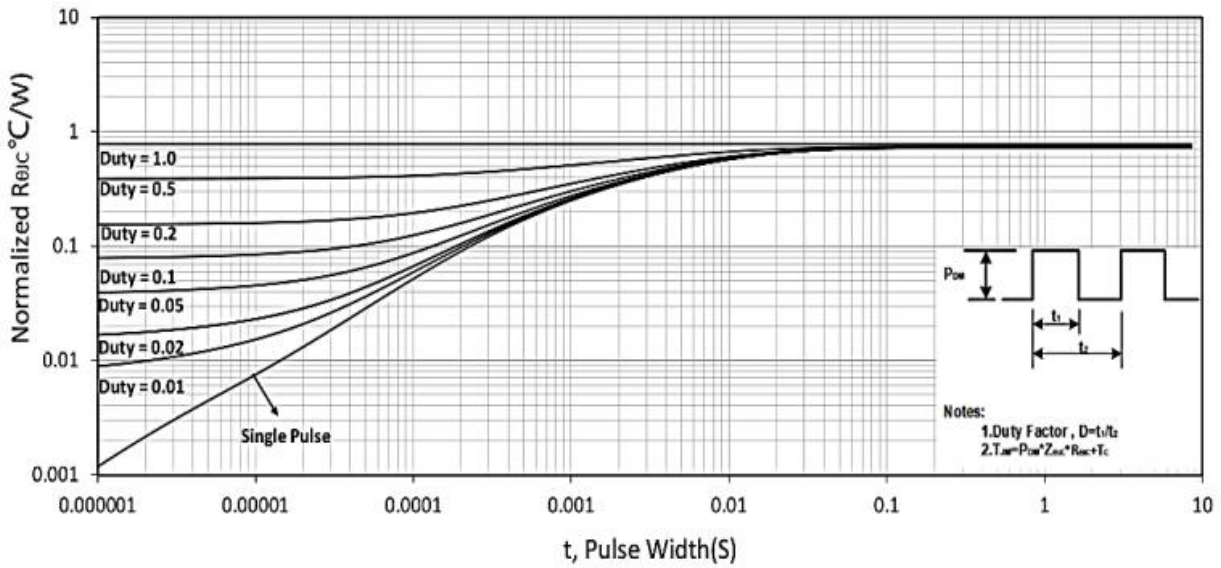
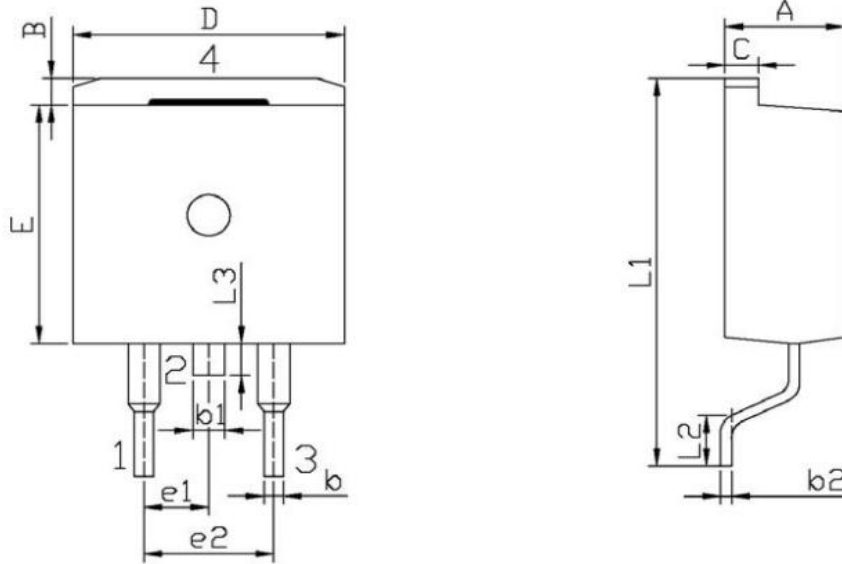


Fig.9 - Normalized Maximum Transient Thermal Impedance



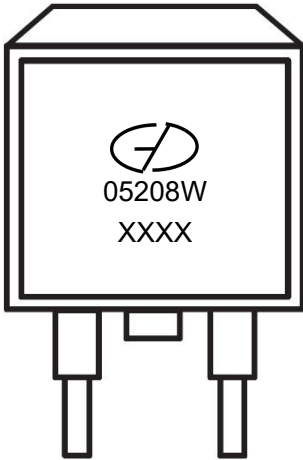
Package Outline Dimensions (Unit: millimeters)

TO-263



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.34	2.74
b	0.70	0.90	e2	4.88	5.28
b1	1.15	1.35	L1	15.00	16.00
b2	0.40	0.60	L2	2.24	2.84
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			

Marking Outline



Part Name: GMN05208W

1. Logo Mark: 
2. P/N Mark: 05208W
3. Date Code: XXXX

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