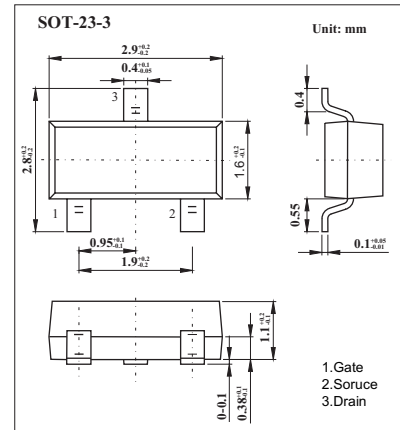
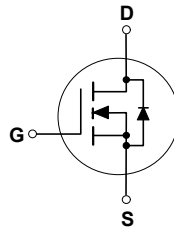


## N-Channel Power MOSFET

## AP2310GN

## ■ Features

- Simple Drive Requirement
- Small Package Outline
- Surface Mount Device

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	$T_A=25^\circ\text{C}$	3
		$T_A=70^\circ\text{C}$	2.3
Pulsed Drain Current *	$I_{DM}$	10	A
Power Dissipation	$P_D$	1.38	W
Linear Derating Factor		0.01	$W/^\circ\text{C}$
Thermal Resistance Junction-to-ambient	$R_{thJa}$	90	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$

\* 2. Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

## AP2310GN

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			10	μA
		V <sub>DS</sub> =48, V <sub>GS</sub> =0V, T <sub>J</sub> =70°C			25	
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250μA	1		3	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =3A			90	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =2A			120	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3A		5		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1MHz		490	780	pF
Output Capacitance	C <sub>oss</sub>			55		
Reverse Transfer Capacitance	C <sub>rss</sub>			40		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =48V, I <sub>D</sub> =3A, V <sub>GS</sub> =4.5V		6	10	nC
Gate Source Charge	Q <sub>gs</sub>			1.6		
Gate Drain Charge	Q <sub>gd</sub>			3		
Turn-On DelayTime	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, I <sub>D</sub> =1A R <sub>D</sub> =30Ω, R <sub>GEN</sub> =3.3Ω		6		ns
Turn-On Rise Time	t <sub>r</sub>			5		
Turn-Off DelayTime	t <sub>D(off)</sub>			16		
Turn-Off Fall Time	t <sub>f</sub>			3		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>S</sub> =3A, di/dt=100A/μs		25		
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>S</sub> =3A, di/dt=100A/μs		26		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.2A, V <sub>GS</sub> =0V			1.2	V

# AP2310GN

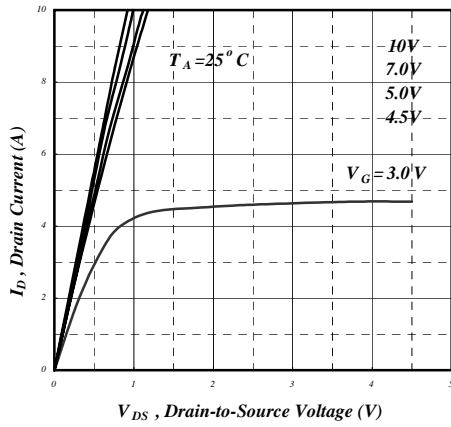


Fig 1. Typical Output Characteristics

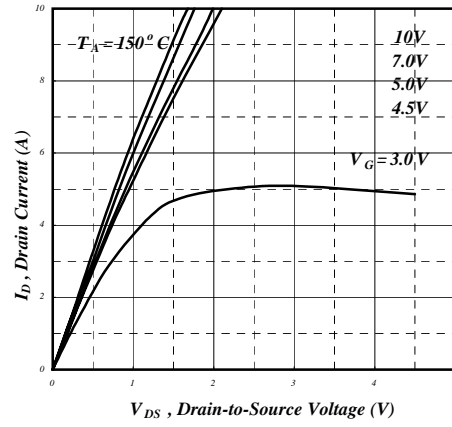


Fig 2. Typical Output Characteristics

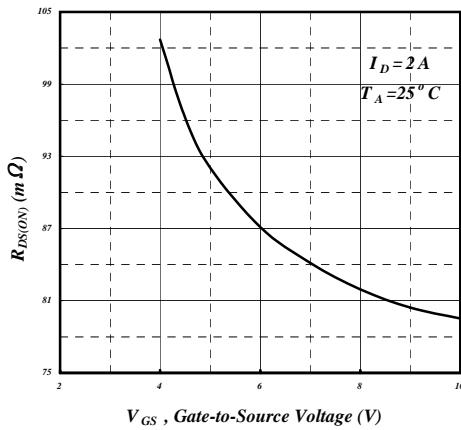


Fig 3. On-Resistance v.s. Gate Voltage

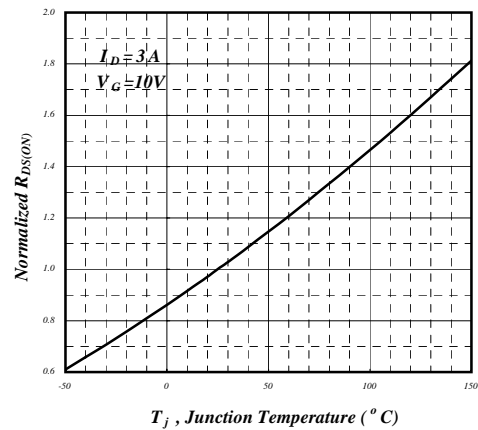


Fig 4. Normalized On-Resistance v.s. Junction Temperature

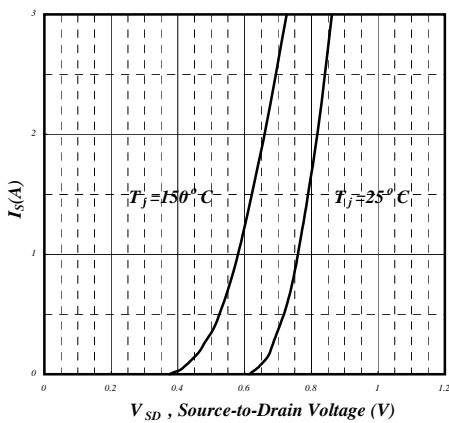


Fig 5. Forward Characteristic of Reverse Diode

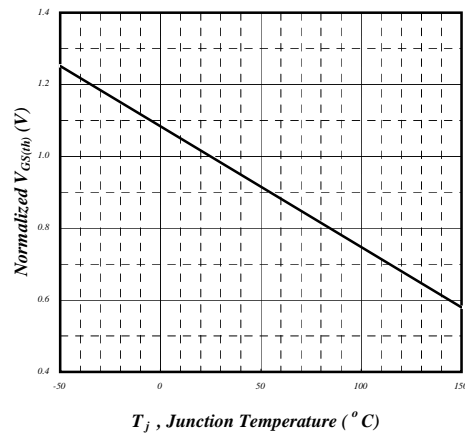


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

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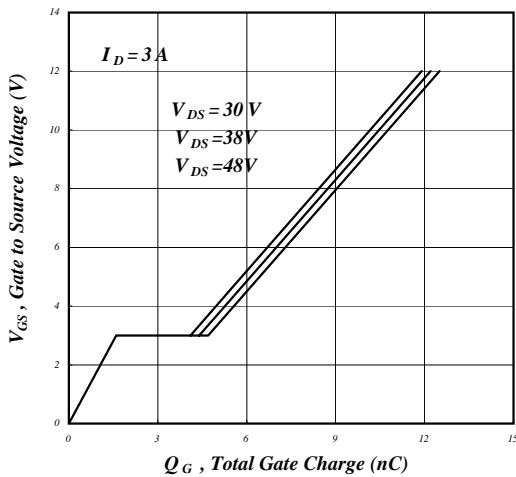


Fig 7. Gate Charge Characteristics

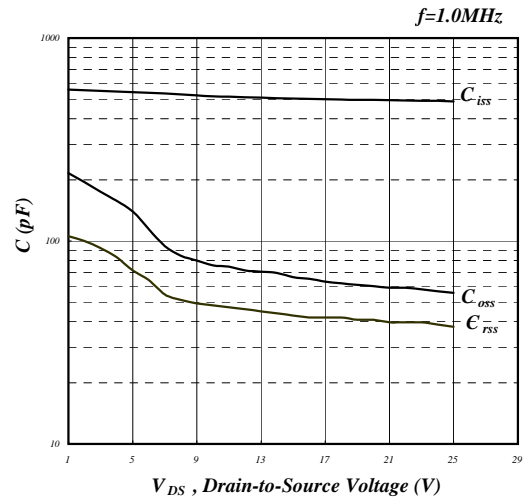


Fig 8. Typical Capacitance Characteristics

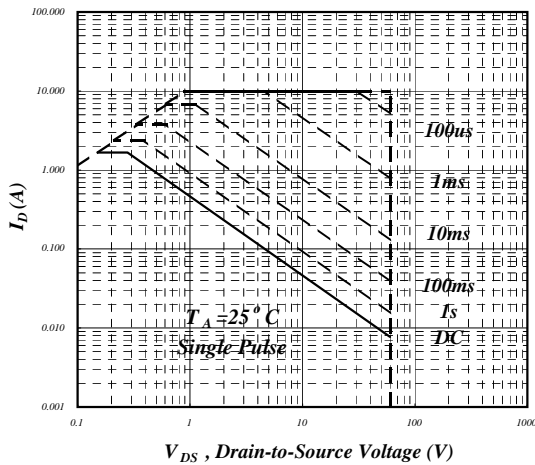


Fig 9. Maximum Safe Operating Area

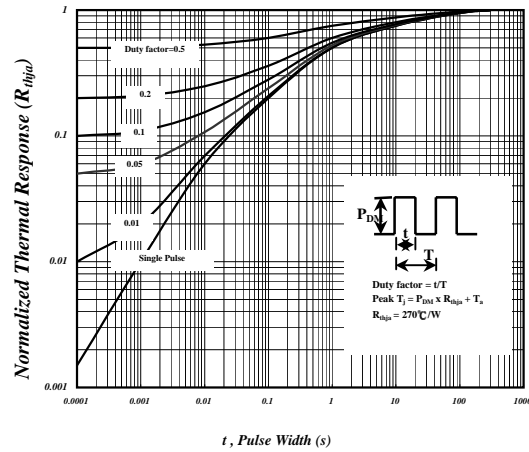


Fig 10. Effective Transient Thermal Impedance