120V N-Ch Power MOSFET

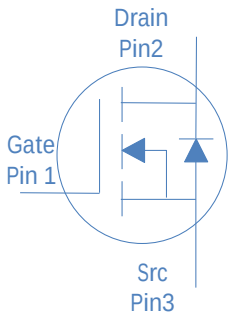
V_{DS}	120	V
$R_{DS(on),typ}$	4.7	mΩ
I_D	66.7	A

Feature

- High Speed Power Smooth Switching
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free

Application

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- Power Tools
- UPS
- Motor Control



Part Number	Package	Marking
HGA059N12S	TO-220F	GA059N12S

Absolute Maximum Ratings at T_j=25 (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current	I_D	T_C=25	66.7	A
		T_C=100	47	
Drain to Source Voltage	V_{DS}	-	120	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	500	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.4mH, T_C=25	720	mJ
Power Dissipation	P_D	T_C=25	58	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	$R_{\Theta JC}$	2.6	/W
Thermal Resistance Junction-Ambient	$R_{\Theta JA}$	60	/W

Fig 1. Typical Output Characteristics	Figure 2. On-Resistance vs. Gate-Source Voltage

Figure 3. On-Resistance vs. Drain Current and Gate Voltage	Figure 4. Normalized On-Resistance vs. Junction Temperature
TO262	

Figure 5. Typical Transfer Characteristics	Figure 6. Typical Source-Drain Diode Forward Voltage

Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

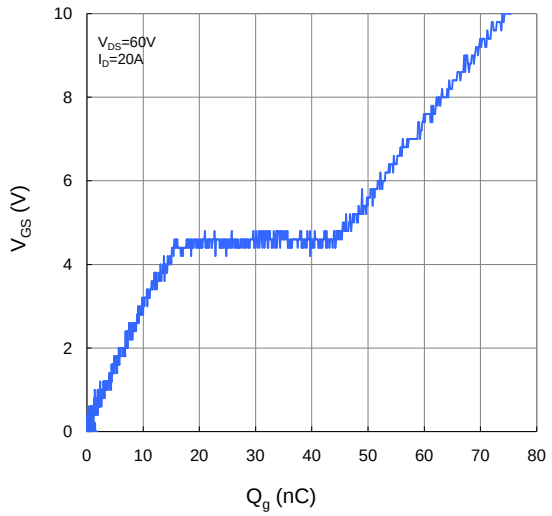


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

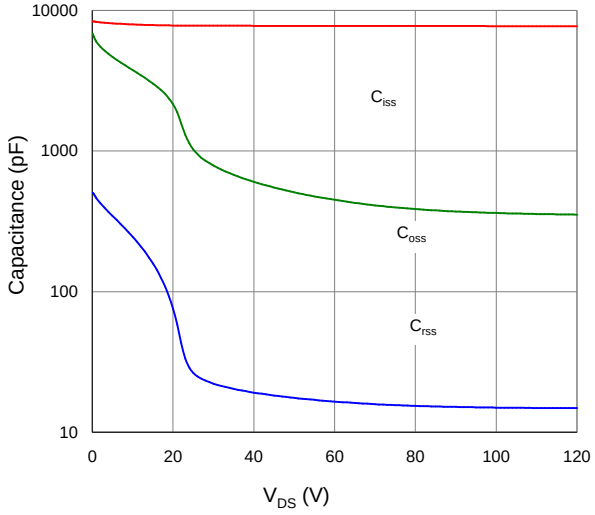


Figure 9. Maximum Safe Operating Area

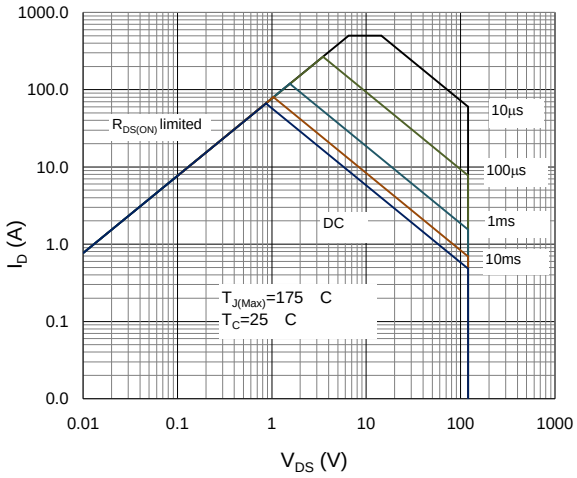


Figure 10. Maximun Drain Current vs. Case Temperature

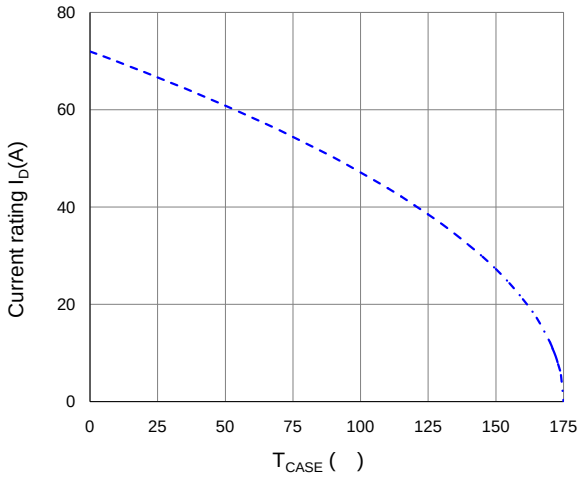
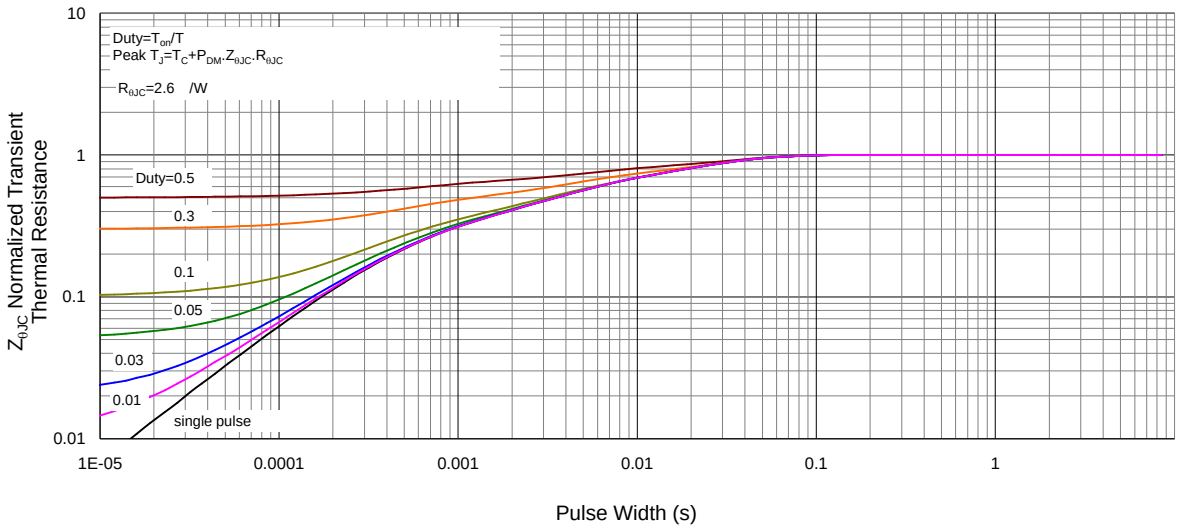


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case



Inductive switching Test	

Gate Charge Test	

Uclamped Inductive Switching (UIS) Test	

Diode Recovery Test	

TO-220F, 3 leads