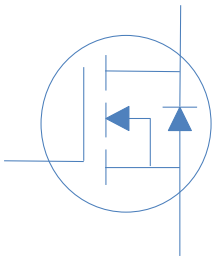
HGB039N08S , HGK039N08S HGP039N08S

80V N-Ch Power MOSFET

V_{DS}		80	V
$R_{DS(on),typ}$	TO-263	2.9	mΩ
	TO-247	3.1	mΩ
$R_{DS(on),typ}$	TO-220	3.2	mΩ
$I_{D\ (Sillicon\ Limited)}$			
$I_{D\ (Package\ Limited)}$		120	A



Part Number	Package	Marking
HGB039N08S	TO-263	GB039N08S
HGK039N08S	TO-247	GK039N08S
HGP039N08S	TO-220	GP039N08S

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

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C=25	187	A
		T_C=100	132	
Continuous Drain Current (Package Limited)		T_C=25	120	
Drain to Source Voltage	V_{DS}	-	80	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	250	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	R		
Thermal Resistance Junction-Ambient		60	

,

			min			
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=80V, T_j=25	-	-	1	μA
		V_{GS}=0V, V_{DS}=80V, T_j=100	-	-	100	
	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-		
Transconductance	g_{fs}					
Gate Resistance	R_G					
Output Capacitance						
Reverse Transfer Capacitance						
			-			
Rise time	t_r	V_{DD}=40V, I_D=20A, V_{GS}=10V,				
Turn off Delay Time		R_G=10Ω,				
Fall Time	t_f		-	9	-	
Diode Forward Voltage	V_{SD}			0.9	1.2	
Reverse Recovery Time	t_{rr}	V_R=40V, I_F=20A, dI_F/dt=400A/μs	-	50	-	ns
Reverse Recovery Charge	Q_{rr}		-	200	-	nC

Fig 1. Typical Output Characteristics

Figure 2. On-Resistance vs. Gate-Source Voltage

Figure 3. On-Resistance vs. Drain

Figure 4. Normalized On-Resistance vs. Junction Temperature

Figure 5. Typical Transfer Characteris

re 6. Typical Source-Drain Diode Forward Vol

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

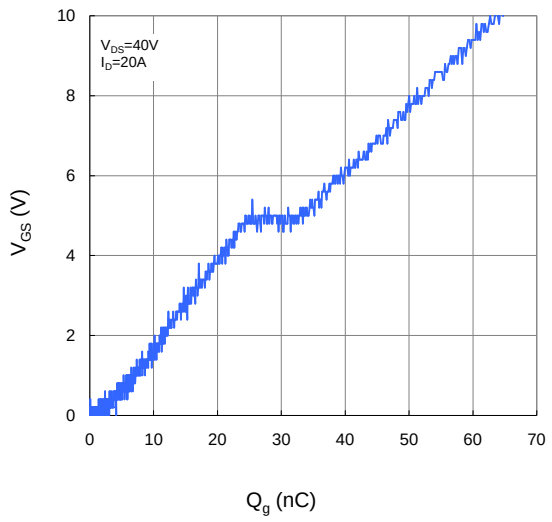


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

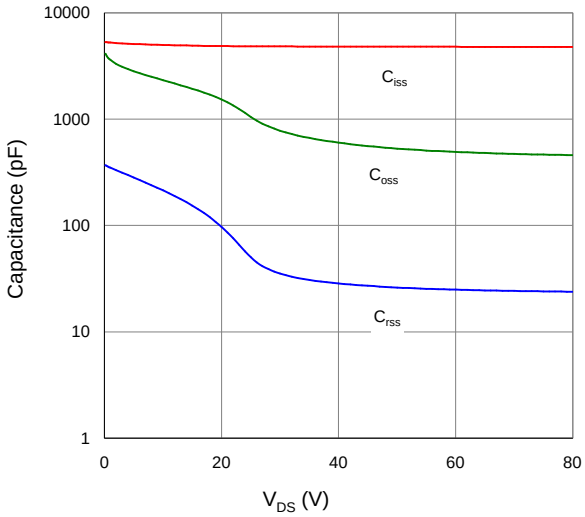


Figure 9. Maximum Safe Operating Area

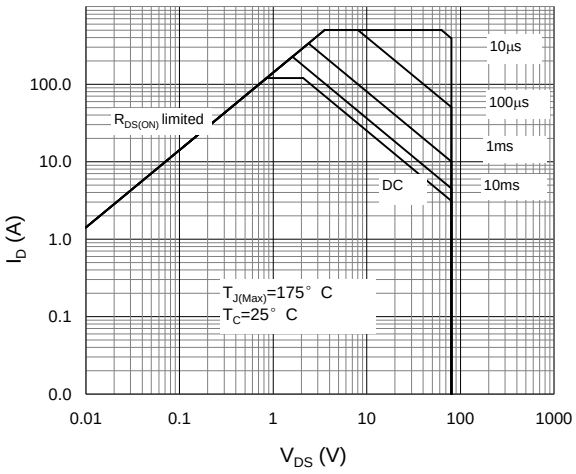


Figure 10. Maximun Drain Current vs. Case Temperature

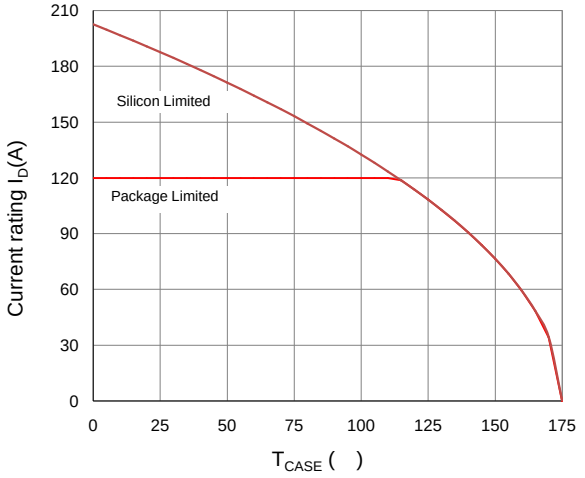
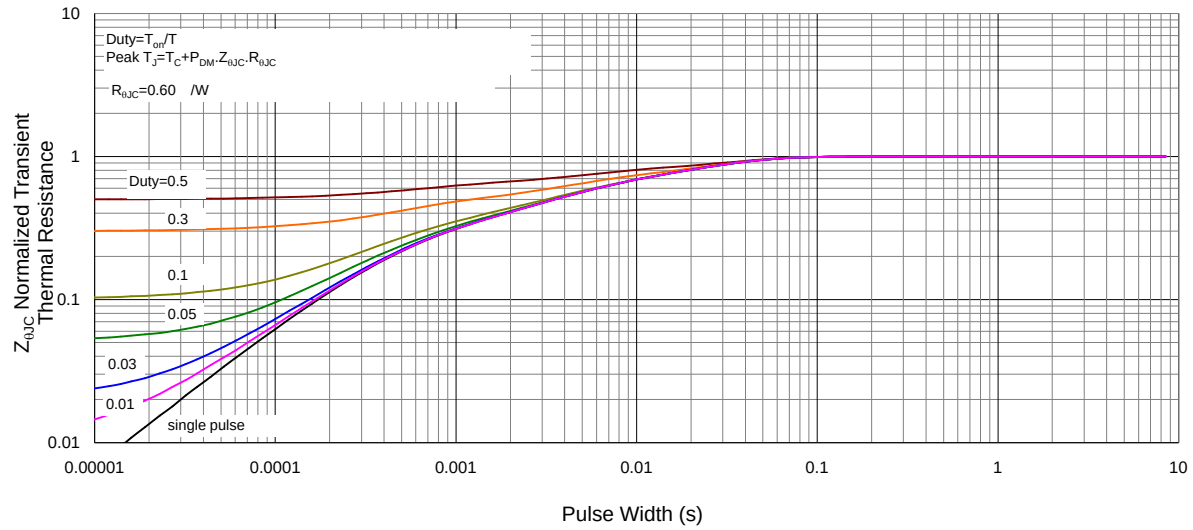
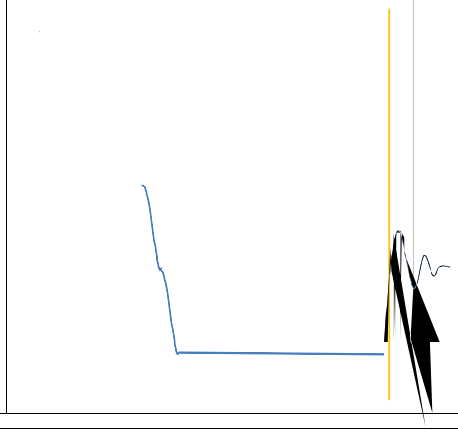


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case



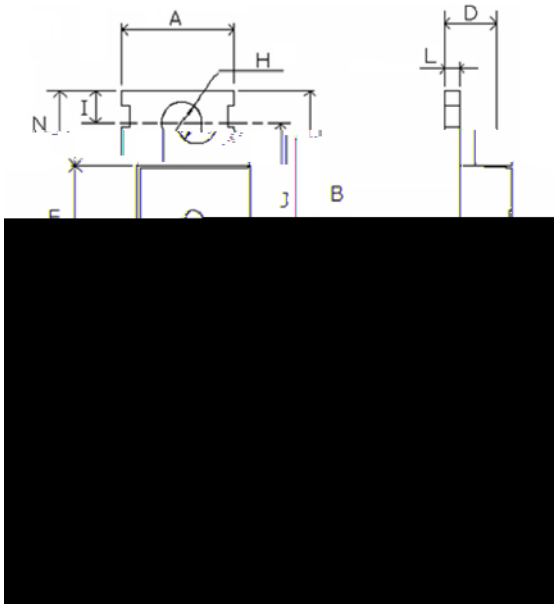
Inductive switching Test	
	

Gate Charge Test	

Uclamped Inductive Switching (UIS) Test	

Diode Recovery Test	

TO-220, 3 leads



Dimentions in mm unless otherwise specified

Symbol	Min	Nom	Max
A	9.66	9.97	10.28
A2	9.80	10.00	10.20
B	15.60	15.70	15.80
C	12.70	13.48	14.27
D	4.30	4.50	4.70
E	9.00	9.20	9.40
F		2.54	
G1	1.32	1.52	1.72
G2	0.70	0.82	0.95
G3	0.45	0.52	0.60
H	3.50	3.60	3.70
I	2.70	2.80	2.90
J	15.70	15.97	16.25
K	2.20	2.40	2.60
L	1.15	1.27	1.40
N	6.40	6.60	6.80

TO-263, 2 leads

Dimentions in mm unless otherwise specified

Symbol	Min	Nom	Max
A	9.66	9.97	10.28
B	1.02	1.17	1.32
C	8.59	9.00	9.40
D1	1.14	1.27	1.40
D2	0.70	0.83	0.95
D3		5.08	
E	15.09	15.24	15.39
F	1.15	1.28	1.40
G	4.30	4.50	4.70
H	2.29	2.54	2.79
I		0.25	
K	1.30	1.45	1.60
a1	0.45	0.55	0.65
a2(degree)	0°		8°

TO-247, 3 leads