80V N-Ch Power MOSFET

V_{DS}		80	V
$R_{DS(on),typ}$	TO-263	2.9	mΩ
$R_{DS(on),typ}$	TO-220	3.2	mΩ
$I_{D\ (Sillicon\ Limited)}$		196	A
$I_{D\ (Package\ Limited)}$		180	A

Part Number	Package	Marking
HGB039N08A	TO-263	GB039N08A
HGP039N08A	TO-220	GP039N08A

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	196	A
		T_C=100	139	
Continuous Drain Current (Package Limited)		T_C=25	180	
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	320	mJ
Power Dissipation	P_D	T_C=25	272	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	R	0.55	/W
Thermal Resistance Junction-Ambient	R	60	/W

Zero Gate Voltage Drain Current	I_{DSS}			-	-	1	μA
		V_{GS}=0V, V_{DS}=80V, T_j=100		-	-	100	
Gate to Source Leakage Current		V_{GS}=±20V, V_{DS}=0V		-	-		
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	TO-263			3.6	
				-	3.2	3.9	
Transconductance	g_{fs}						
Gate Resistance	R_G						

EMC /P AMCID 157 21DC 0 Tc 0 Tw 16.4 -0.024 24 Td(Q)Tj 6.84 0 0 6.84 207.96 192 T304m[(O)-(f)C /P AMCID 184 22DC 10.							
Reverse Transfer Capacitance	C_{rss}			-			
				-			
					0.9	1.2EMC /P AMCID 157 20	
Reverse Recovery Time	t_{rr}	V_R=4	00A/μs	-	44	-	ns
Reverse Recovery Charge	Q_{rr}			-	155	-	nC

Fig 1. Typical Output Characteristics

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

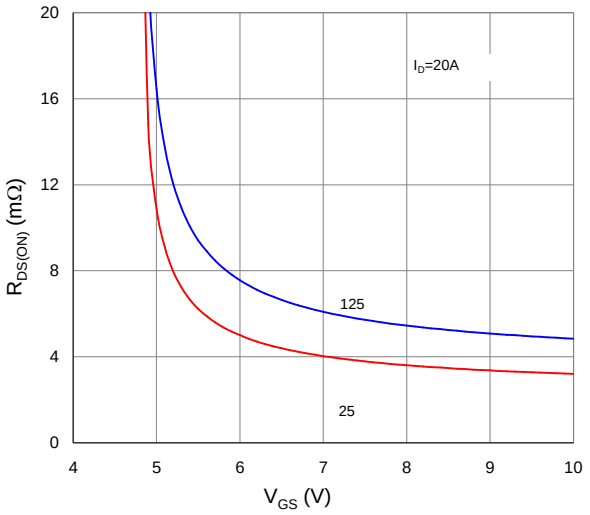


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

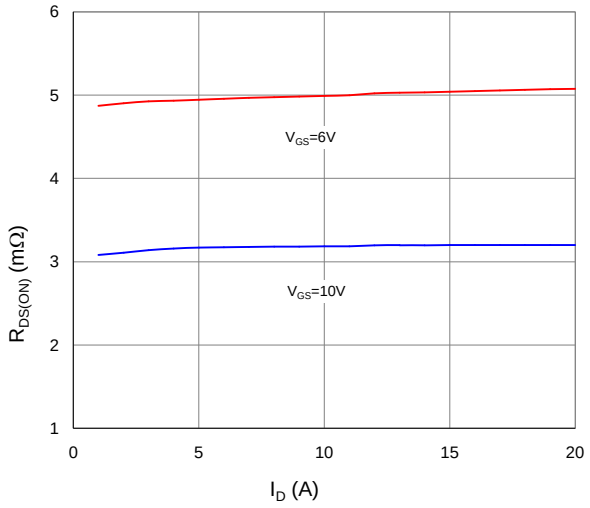


Figure 4. Normalized On-Resistance vs. Junction Temperature

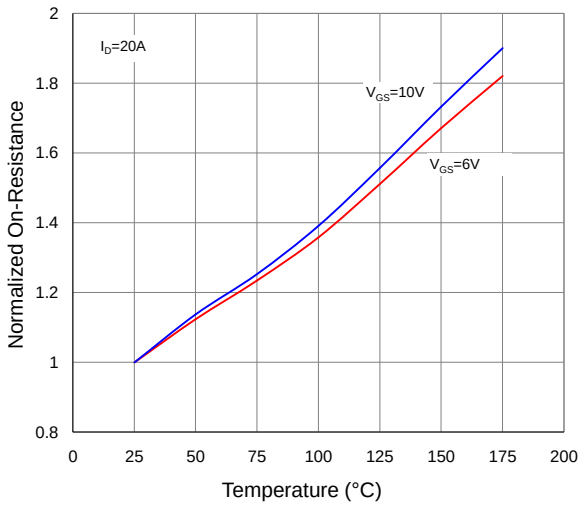


Figure 5. Typical Transfer Characteristics

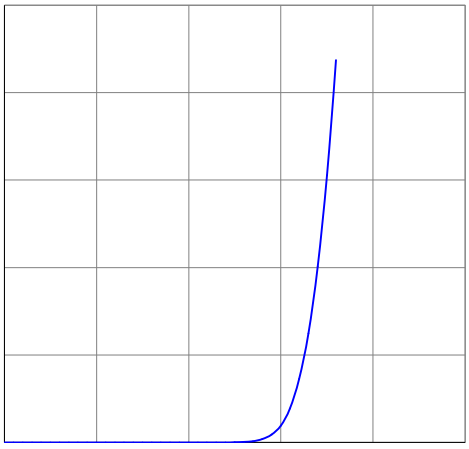
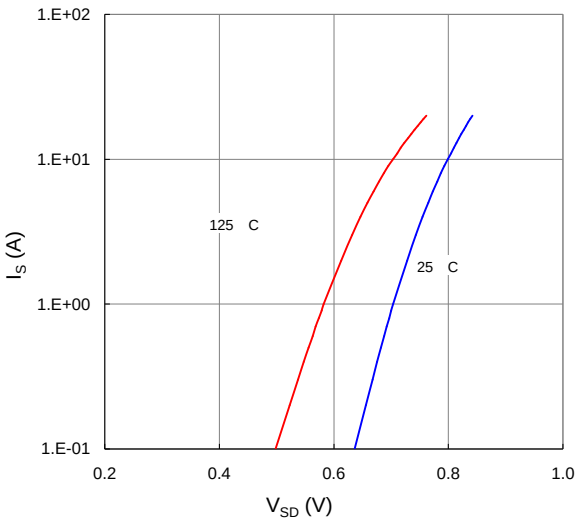
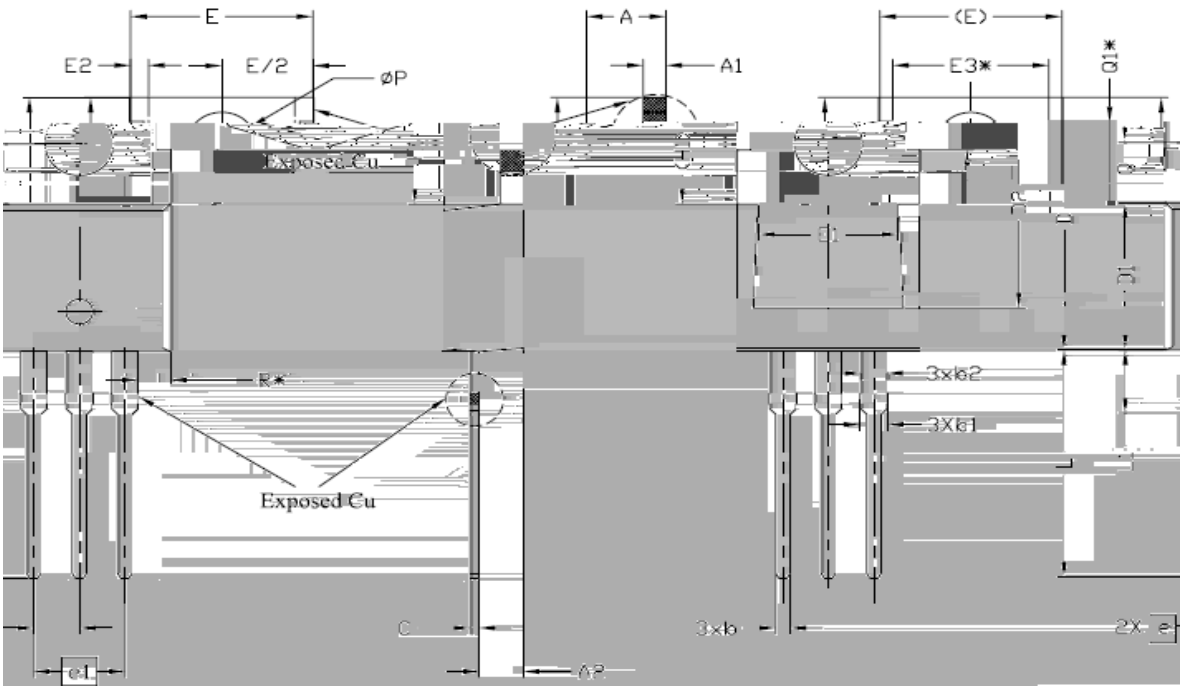


Figure 6. Typical Source-Drain Diode Forward Voltage

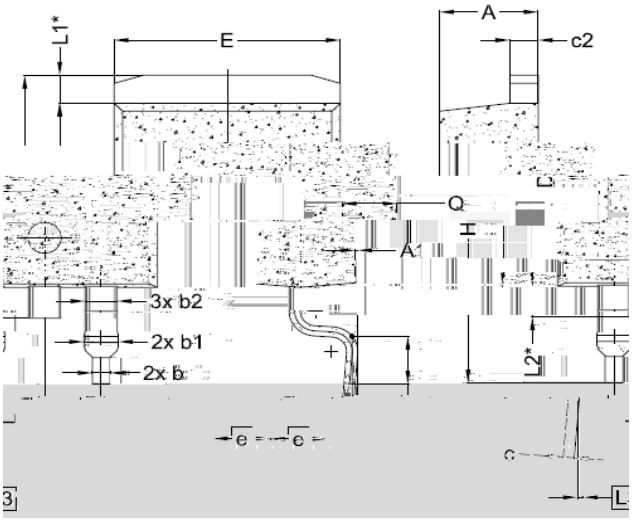


TO-220, 3 leads



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.24	4.44	4.64	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.70	
b	0.70	0.80	0.90	
b1	1.20	1.55	1.75	
b2	1.20	1.45	1.70	
c	0.40	0.50	0.60	
D	14.70	15.37	16.00	4
D1	8.82	8.92	9.02	
D2	12.63	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.86	7.77	8.89	5
E2	-	-	0.76	6
E3*	8.70REF.			
e	2.54BSC			
e1	5.08BSC			
H1	6.30	6.45	6.60	5,6
L	13.47	13.72	13.97	
L1	3.60	3.80	4.00	
øP	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

TO-263, 3 leads



SYMBOL	DIMENSIONS		
	MIN.	NOM.	MAX.
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A1	0.00	0.10	0.25
b	0.70	0.80	0.90
b1	1.20	1.55	1.75
b2	1.20	1.45	1.70
c	0.40	0.50	0.60
c2	1.15	1.27	1.40
D	8.82	8.92	9.02