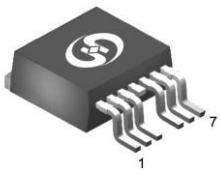
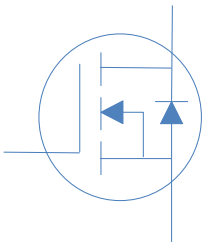
100V N-Ch Power MOSFET

V_{DS}	100	V
$R_{DS(on),typ}$	2.0	m
$I_{D\ (Sillicon\ Limited)}$	258	A

Part Number	Package	Marking
HGB025N10A	TO-263-7	GB025N10A





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℃	258	A
		T_C=100℃	183	
Continuous Drain Current (Package Limited		T_C=25℃	180	
Drain to Source Voltage	V_{DS}	-	100	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	800	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.4mH, T_C=25℃	720	mJ
Power Dissipation	P_D	T_C=25℃	341	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	℃

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	R_{JA}	60	℃/W
Thermal Resistance Junction-Case	R_{JC}	0.44	℃/W

Electrical Characteristics at T_j=25℃ (unless otherwise specified)

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250 A	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250 A	2.0	3.0	4.0	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=100V, T_j=25℃	-	-	10	A
		V_{GS}=0V, V_{DS}=100V, T_j=100℃	-	-	100	
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	-	2	2.5	m
Transconductance	g_{fs}	V_{DS}=5V, I_D=20A	-	75	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz	-	1.5	-	

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=50V, f=1MHz	-	7684	-	pF
Output Capacitance	C_{oss}		-	114	-	
Reverse Transfer Capacitance	C_{rss}		-	21	-	
Total Gate Charge	Q_g(10V)	V_{DD}=50V, I_D=20A, V_{GS}=10V	-	106	-	nC
Gate to Source Charge	Q_{gs}		-	24	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	22	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=50V, I_D=20A, V_{GS}=10V, R_G=10 ,	-	28	-	ns
Rise time	t_r		-	22	-	
Turn off Delay Time	$t_{d(off)}$		-	52	-	
Fall Time	t_f		-	13	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=20A	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	V_R=50V, I_F=20A, dI_F/dt=500A/ s	-	65	-	ns
Reverse Recovery Charge	Q_{rr}		-	455	-	nC

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

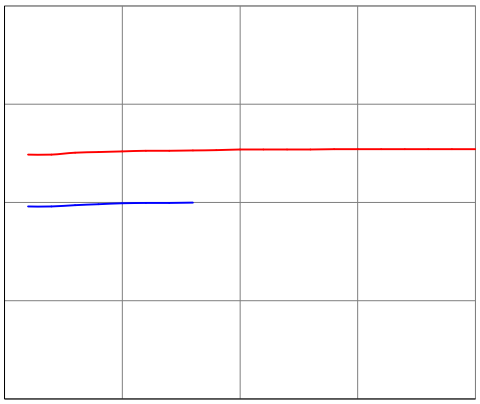
Figure 3. On-Resistance vs. Drain Current and Gate Voltage	Figure 4. Normalized On-Resistance vs. Junction Temperature
	

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

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

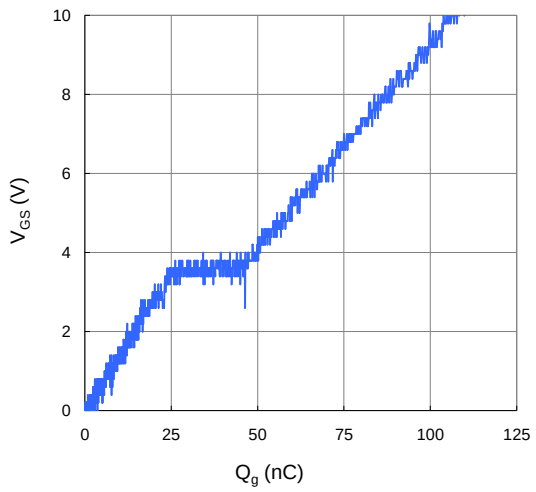


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

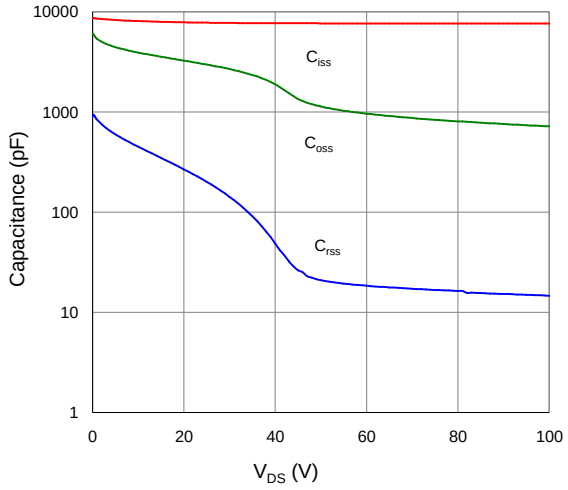


Figure 9. Maximum Safe Operating Area

Figure 10. Maximun Drain Current vs. Case Temperature

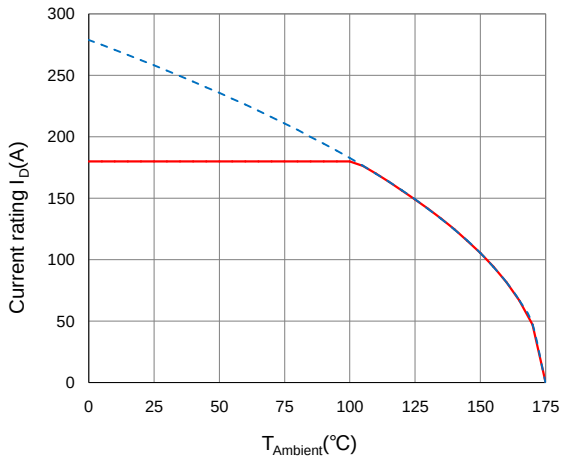
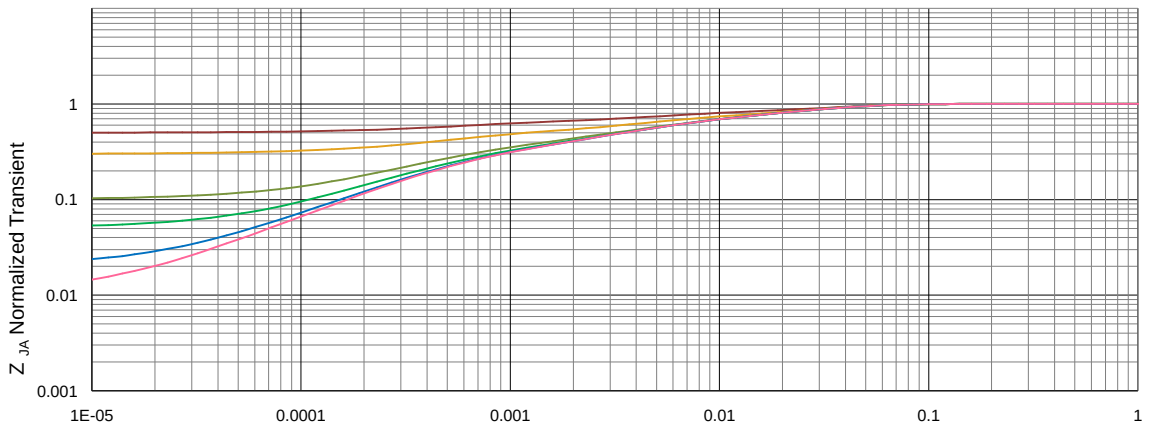


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient



Inductive switching Test

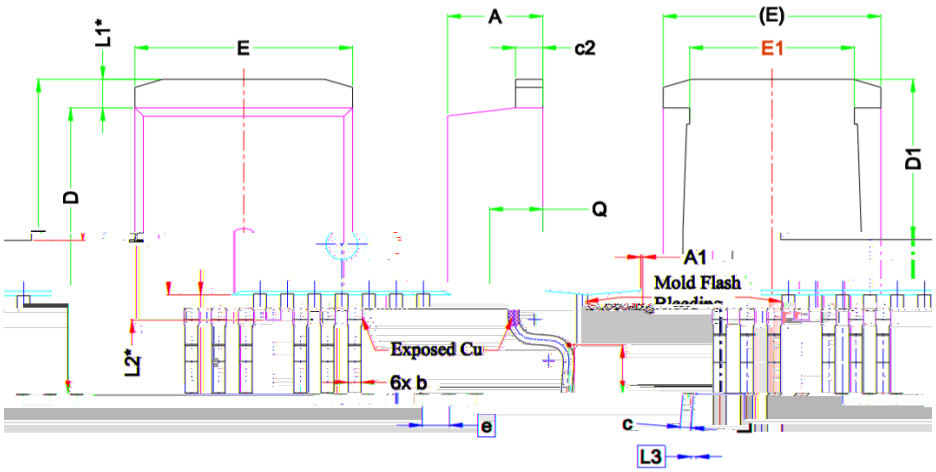
Gate Charge Test

Uclamped Inductive Switching (UIS) Test

Diode Recovery Test

Package Outline

TO-263-7, 7 leads



DIMENSIONS			
NOM.	MAX.		MIN.
4.44	4.64	A	4.24
0.10	0.25	A1	0.00
0.80	0.70	b	0.50
0.50	0.60	c	0.40
1.27	1.40	c2	1.15
8.92	9.02	D	8.62
7.65	---	D1	6.86
10.16	10.36	E	9.96
7.77	7.89	E1	6.89
.27 BSC		e	1
15.00	15.88	H	14.61
2.32	2.79	L	1.78
.36 REF.		L1	1.
.20 REF.		L2	1.
25 BSC		L3	
Q	2.30	2.48	2.70