60V N-Ch Power MOSFET

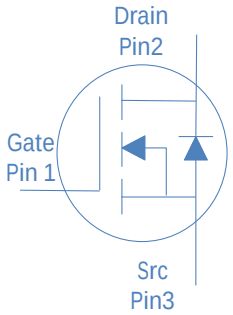
Feature

- High Speed Power 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

V_{DS}		60	V
$R_{DS(on),typ}$	TO-263	1.6	mΩ
$R_{DS(on),typ}$	TO-247	1.8	mΩ
$R_{DS(on),typ}$	TO-220	1.9	mΩ
$I_{D\ (Sillicon\ Limited)}$		230	A
$I_{D\ (Package\ Limited)}$		120	A



Part Number	Package	Marking
HGB025N06S	TO-263	GB025N06S
HGK025N06S	TO-247	GK025N06S
HGP025N06S	TO-220	GP025N06S

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	230	A
		T_C=100	160	
Continuous Drain Current (Package Limited)		T_C=25	120	
Drain to Source Voltage	V_{DS}	-	60	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	500	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.1mH, T_C=25	180	mJ
Power Dissipation	P_D	T_C=25	300	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.5	/W
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	60	/W

Fig 1. Typical Output Characteristics

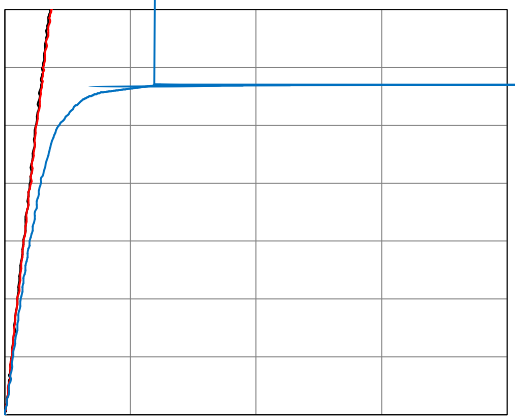


Figure 2. On-Resistance vs. Gate-Source Voltage

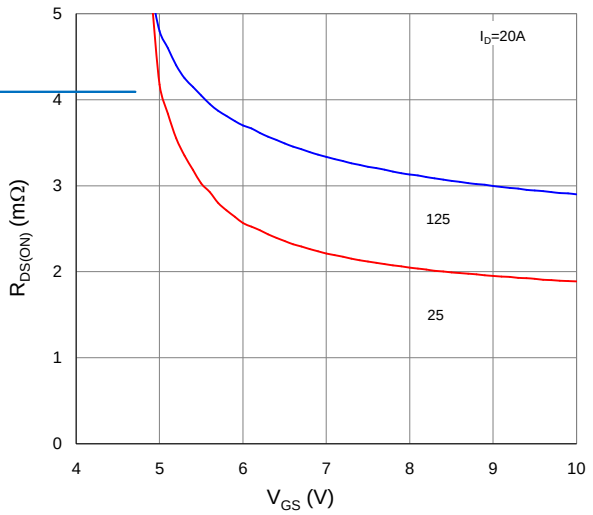


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

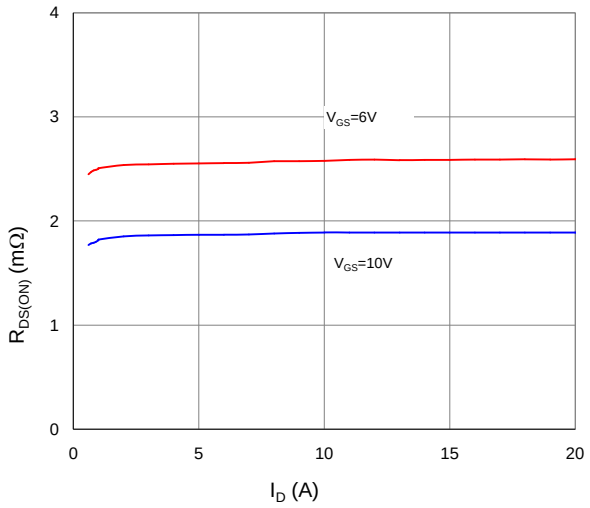


Figure 4. Normalized On-Resistance vs. Junction Temperature

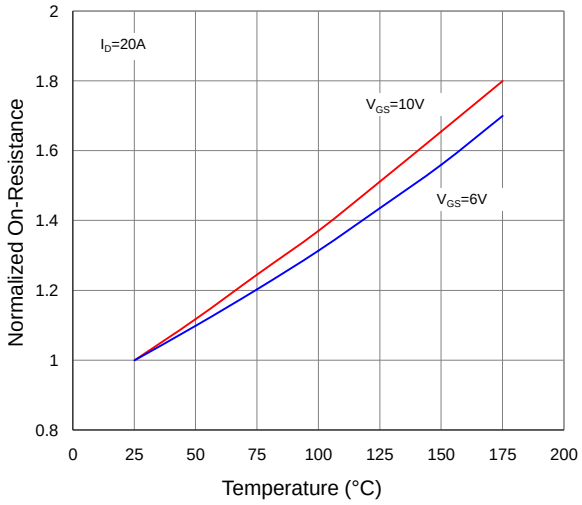


Figure 5. Typical Transfer Characteristics

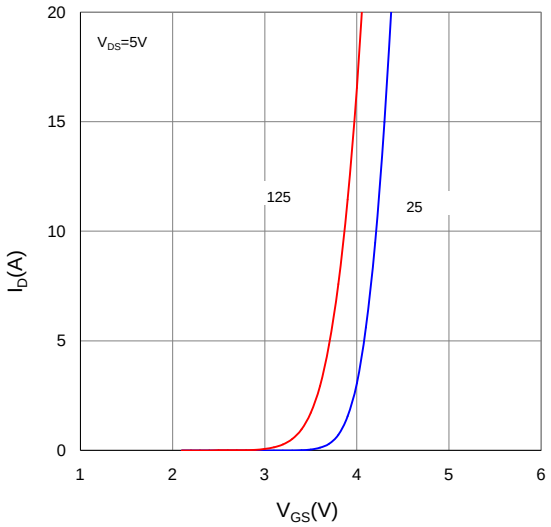


Figure 6. Typical Source-Drain Diode Forward Voltage

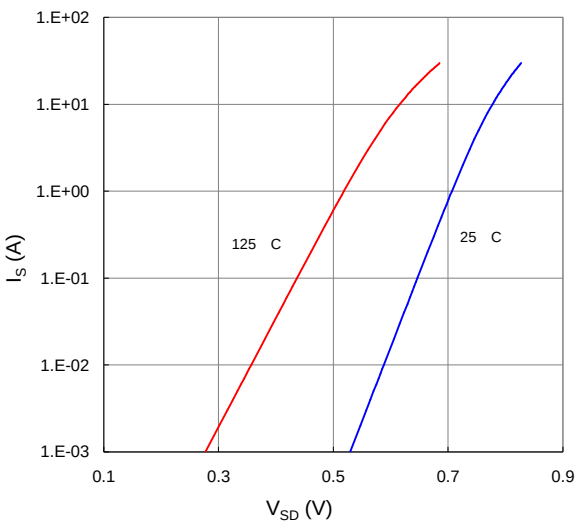


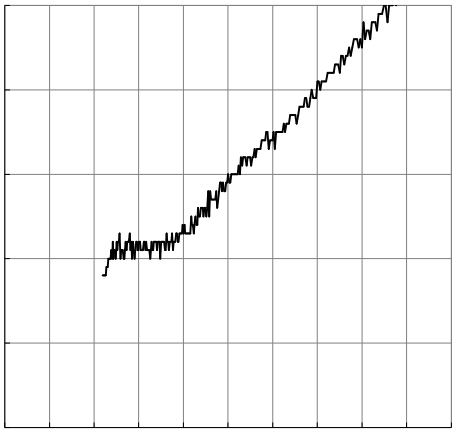
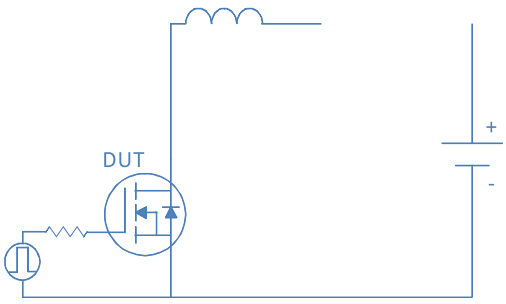
Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage	Figure 8. Typical Capacitance vs. Drain-to-Source Voltage
	

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	

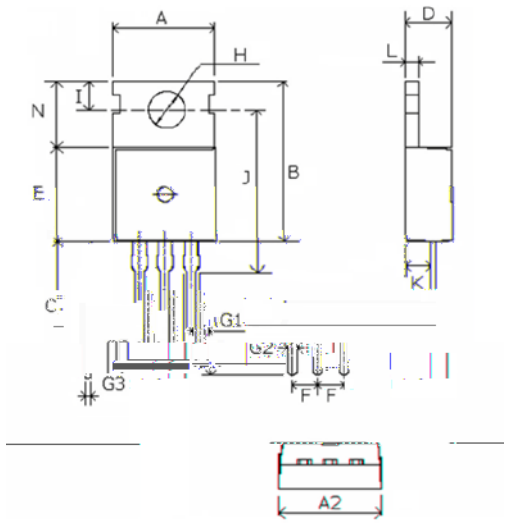
Gate Charge Test	

Uclamped Inductive Switching (UIS) Test	
	

Diode Recovery Test	

Package Outline

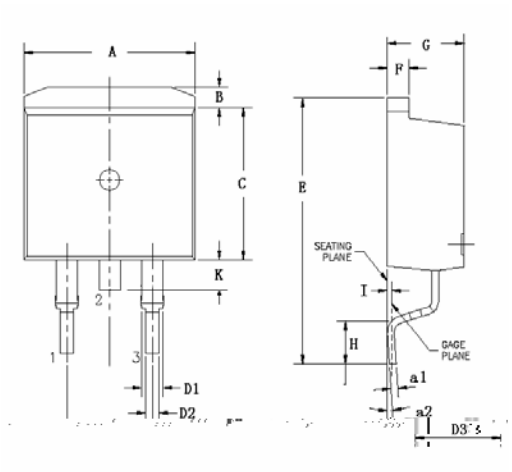
TO-220, 3 leads



Dimentions in mm unless otherwise specified

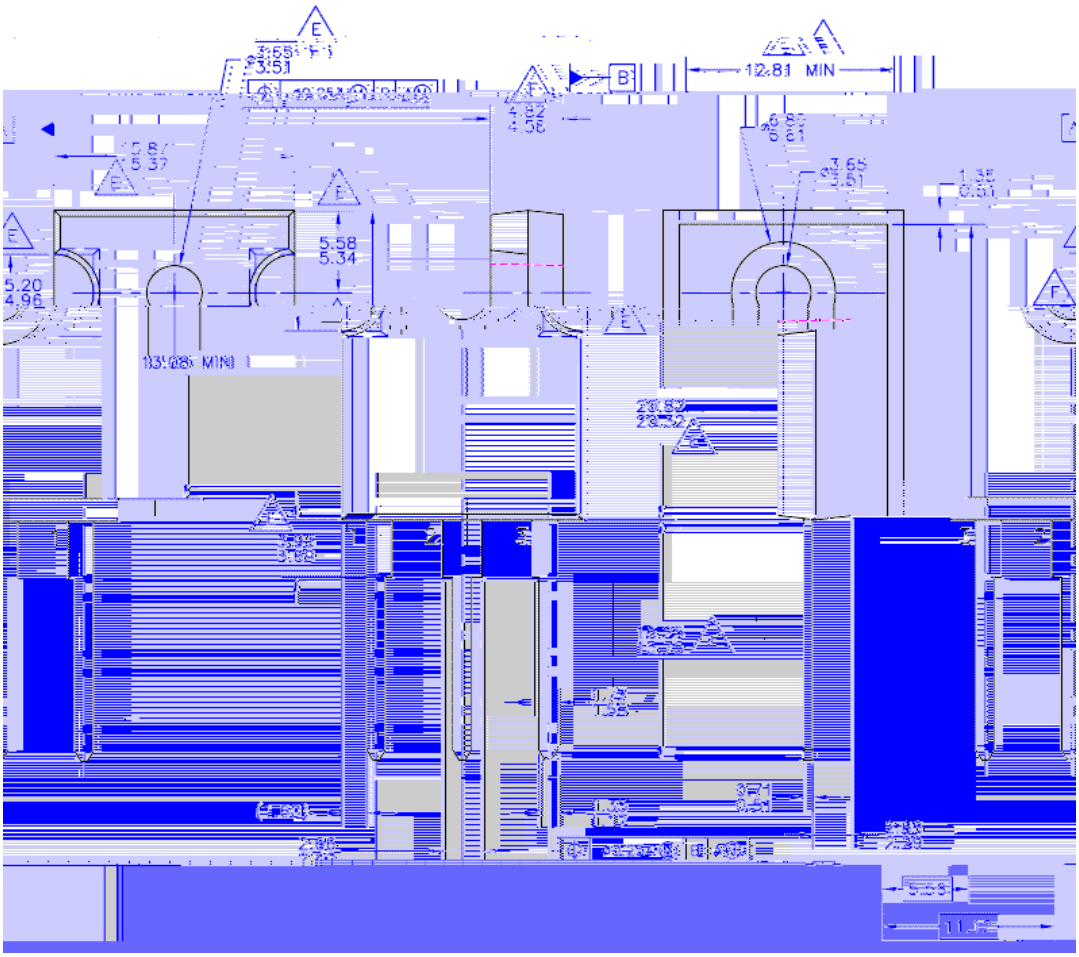
Symbol	Min	Nom	Max
A	9.66	9.97	10.28
A2	9.80	10.00	10.20
B	15.60	15.70	15.80
C	12.70	13.48	14.27
D	4.30	4.50	4.70
E	9.00	9.20	9.40
F		2.54	
G1	1.32	1.52	1.72
G2	0.70	0.82	0.95
G3	0.45	0.52	0.60
H	3.50	3.60	3.70
I	2.70	2.80	2.90
J	15.70	15.97	16.25
K	2.20	2.40	2.60
L	1.15	1.27	1.40
N	6.40	6.60	6.80

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°

Package Outline

TO-247, 3 leads