HGB057N15S , HGK057N15S HGP057N15S

150V N-Ch Power MOSFET

V_{DS}		150	V
$R_{DS(on),TYP}$	TO-263	5.3	
$R_{DS(on),TYP}$	TO-247		
$R_{DS(on),TYP}$	TO-220	5.5	mΩ
$I_{D\ (Sillicon\ Limited)}$		161	A

Part Number		
HGB057N15S		GB057N15S
HGK057N15S	TO-247	GK057N15S
		GP057N15S

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

		Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C=25 T_C=100	161 114	A
Pulsed Drain Current	I_{DM}	-		V
Operating and Storage Temperature	T_J, T_{stg}	-		W
				/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=250μA		150	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA		2	3	4	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=150V, T_j=25		-	-	1	μA
		V_{GS}=0V, V_{DS}=150V, 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	TO-263	-	5.3	5.7	mΩ
			TO-247	-	5.4	6	
			TO-220	-	5.5	6	
Transconductance	g_{fs}	V_{DS}=5V, I_D=20A		-	80	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz		-	2.7	-	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=75V, f=1MHz	-	6328	-	pF
Output Capacitance	C_{oss}		-	463	-	
Reverse Transfer Capacitance	C_{rss}		-	7.5	-	
Total Gate Charge	Q_g	V_{DD}=75V, I_D=20A, V_{GS}=10V	-	80	-	nC
Gate to Source Charge	Q_{gs}		-	28	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	12	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=75V, I_D=20A, V_{GS}=10V, R_G=10Ω,	-	27	-	ns
Rise time	t_r		-	21	-	
Turn off Delay Time	$t_{d(off)}$		-	38	-	
Fall Time	t_f		-	14	-	

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=75V, I_F=20A, dI_F/dt=100A/μs	-	80	-	ns
Reverse Recovery Charge	Q_{rr}		-	160	-	nC

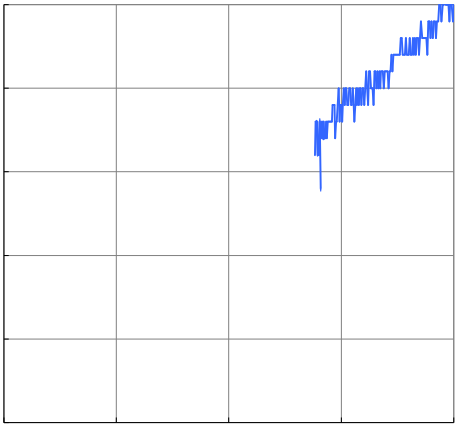
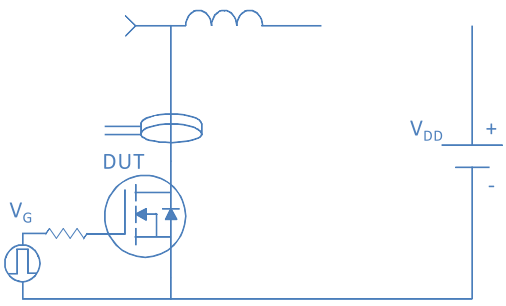
Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage	Figure 8. Typical Capacitance vs. Drain-to-Source Voltage
	

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

TO-263, 3 leads

TO-263, 2 leads

TO-247, 3 leads