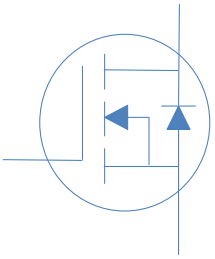
HGB640N25S HGP640N25S HGK640N25S

250V N-Ch Power MOSFET

DS			
DS(on),typ	TO-263		Ω
DS(on),typ	TO-247		Ω
DS(on),typ	TO-220		Ω
		35	



art Number	Package	Marking
IGB640N25S	TO-263	GB640N25S
HGK640N25S	TO-247	GK640N25S
HGP640N25S	TO-220	GP640N25S

=25 (unless otherwise specified)

	Symbol	Conditions		
Contin		=25	35	
		=100		
Drai	DS			
Ga	GS			
P				
		=25		
Po		=25		
Opera			-55 to175	

	Symbol		
Thermal Resistan	ΘJC	0.7	/W
Thermal Resistanc	ΘJA		/W

Electrical Characteristics at T =25 (unless otherwise specified)

Static Characteristics

Parameter	Symbol	Conditions					
					typ		
Drain to Source Breakdown Voltage	(BR)DSS	GS μ					
Gate Threshold Voltage	GS(th)	GS DS μ			3		
Zero Gate Voltage Drain Current	DSS	GS DS =25					μ
		GS DS =100					
Gate to Source Leakage Current	GSS	GS DS					
Drain to Source on Resistance	DS(on)	GS	TO-263				Ω
	DS(on)	GS	TO-247				Ω
	DS(on)	GS	TO-220				Ω
Transconductance	fs	DS			31		S
Gate Resistance		GS DS Open, f=1MHz			4.4		Ω

Dynamic Characteristics

Input Capacitance		GS DS=100V, f=1MHz				pF
Output Capacitance						
Reverse Transfer Capacitance	rss			7.6		
Total Gate Charge		GS				
Gate to Source Charge				7		
Gate to Drain (Miller) Charge	gd			3		
Turn on Delay Time	d(on)	GS Ω		13		
	r					
Turn off Delay Time	d(off)					
Fall Time	f					

Reverse Diode Characteristics

Diode Forward Voltage	SD	GS F		0.9	1.2	
Reverse Recovery Time	rr	F=10A, dI F/dt=100A/μ				
Reverse Recovery Charge	rr					

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

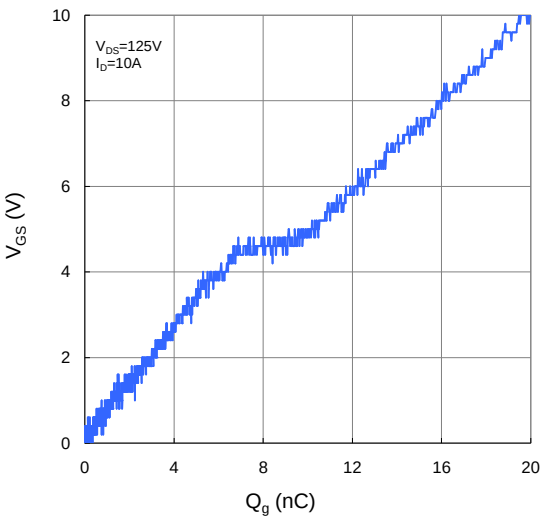


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

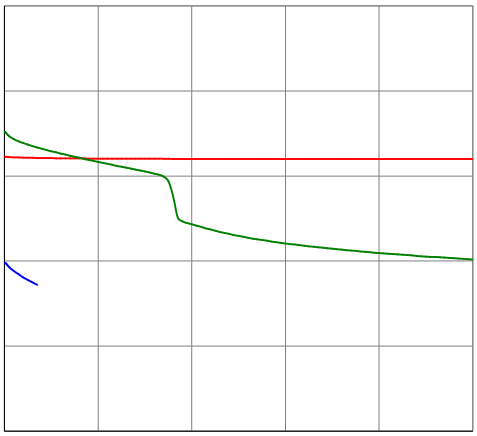


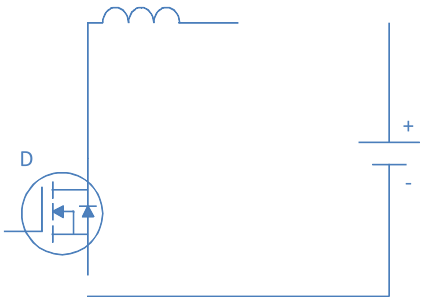
Figure 9. Maximum Safe Operating Area

Figure 10. Maximun Drain Current vs. Case Temperature

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

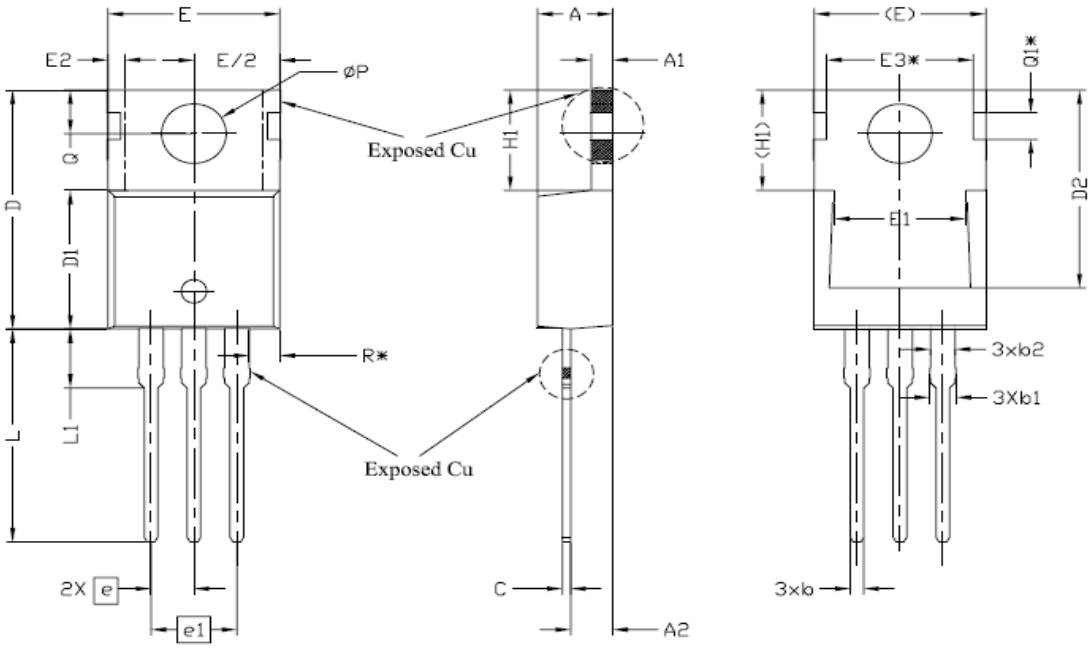
Inductive switching Test	

Gate Charge Test	

Uclamped Inductive Switching (UIS) Test	
	

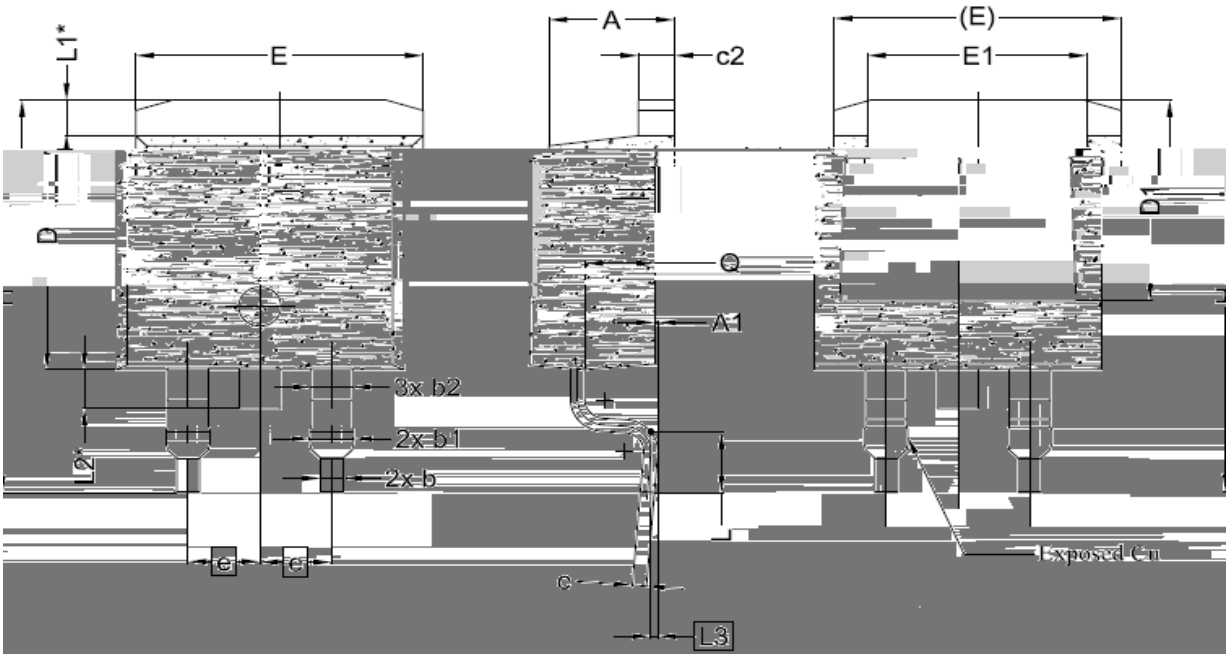
Diode Recovery Test	

TO-220, 3 leads



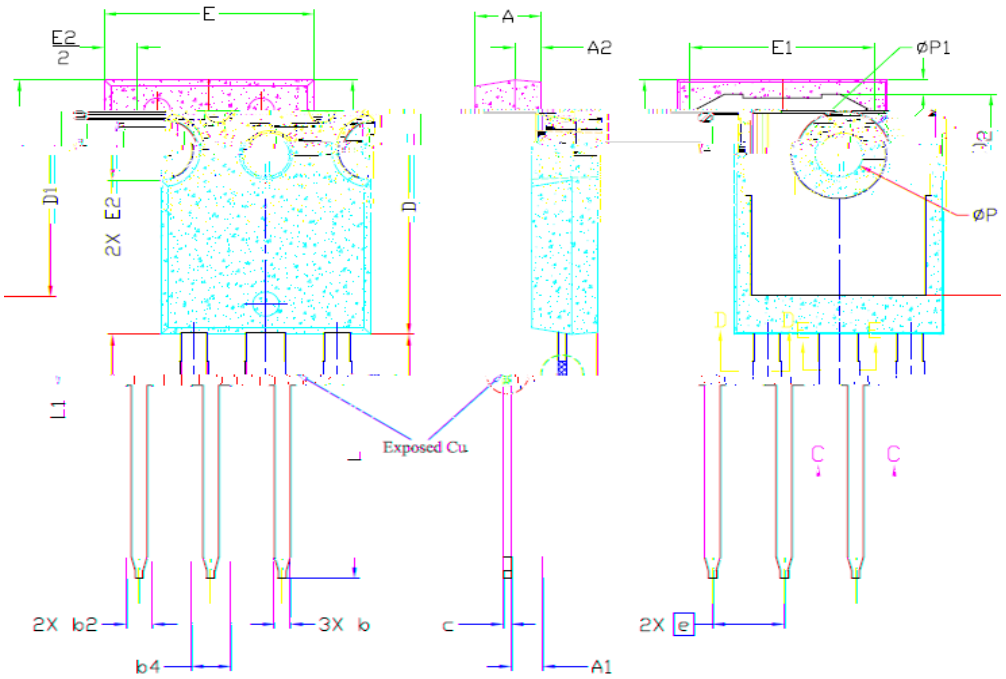
SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.24	4.44	4.64	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.70	
b	0.70	0.80	0.90	
b1	1.20	1.55	1.75	
b2	1.20	1.45	1.70	
c	0.40	0.50	0.60	
D	14.70	15.37	16.00	4
D1	8.82	8.92	9.02	
D2	12.63	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.86	7.77	8.89	5
E2	-	-	0.76	6
E3*	8.70REF.			
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.
A	4.24	4.44	4.64
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
D1	6.86	7.65	—
E	9.96	10.16	10.36
E1	6.89	7.77	7.89
e	2.54 BSC		
H	14.61	15.00	15.88
L	1.78	2.32	2.79
L1	1.36 REF.		
L2	1.50 REF.		
L3	0.25 BSC		
Q	2.30	2.48	2.70

TO-247, 3 leads



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.83	5.02	5.21	
A1	2.29	2.41	2.55	
A2	1.50	2.00	2.49	
b	1.12	1.20	1.33	
b1	1.12	1.20	1.28	
b2	1.91	2.00	2.39	6
b3	1.91	2.00	2.34	
b4	2.87	3.00	3.22	6, 8
b5	2.87	3.00	3.18	
c	0.55	0.60	0.69	6
c1	0.55	0.60	0.65	
D	20.80	20.95	21.10	4
D1	16.25	16.55	17.65	5
D2	0.51	1.19	1.35	
E	15.75	15.94	16.13	4
E1	13.46	14.02	14.16	5
E2	4.32	4.91	5.49	3
e	5.44BSC			
L	19.81	20.07	20.32	
L1	4.10	4.19	4.40	6
ØP	3.56	3.61	3.65	7
ØP1	7.19REF.			
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	