45V N-Ch Power MOSFET

V_{DS}		45	V
$R_{DS(on),typ}$	V_{GS}=10V	3.5	mΩ
$R_{DS(on),typ}$	V_{GS}=4.5V	4.6	mΩ
$I_{D\ (Sillicon\ Limited)}$		114	A

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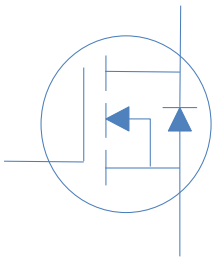


Part Number	Package	Marking
HGP045NE4SL	TO-220	GP045NE4SL

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	114	A
		T_C=100	80	
Drain to Source Voltage	V_{DS}	-	45	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	350	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.3mH, T_C=25	60	mJ
Power Dissipation	P_D	T_C=25	125	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.2	/W
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	50	/W

Electrical Characteristics at T_j=25 (unless otherwise specified)

Static Characteristics

Parameter	Symbol	Conditions	Value min	Value typ	Value max	Unit
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	45	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA	1	1.8	2.2	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=45V, T_j=25	-	-	1	μA
		V_{GS}=0V, V_{DS}=45V, 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				mΩ
		V_{GS}=4.5V, I_D=20A	-		7.0	mΩ
	g_{fs}	V_{DS}=5V, I_D=20A	-	40	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz				Ω
Output Capacitance	C_{oss}			2159	-	
				118	-	
Diode Forward Voltage	V_{SD}					V
Reverse Recovery Time	t_{rr}	V_R=20V, I_F=20A, dI_F/dt=200A/μs	-	30	-	ns
Reverse Recovery Charge	Q_{rr}					

Fig 1. Typical Output Characteristics

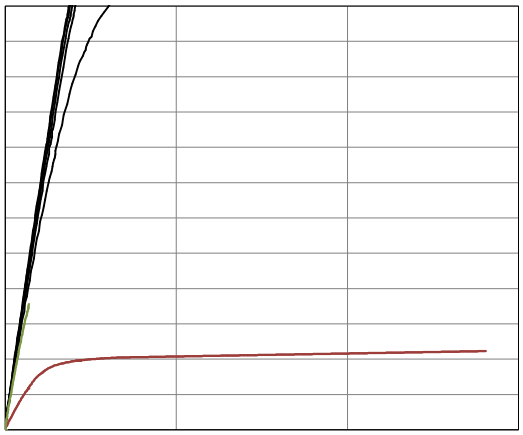


Figure 2. On-Resistance vs. Gate-Source Voltage

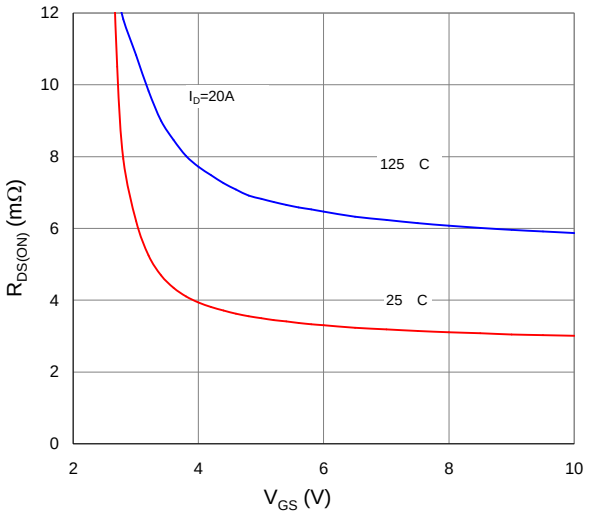


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

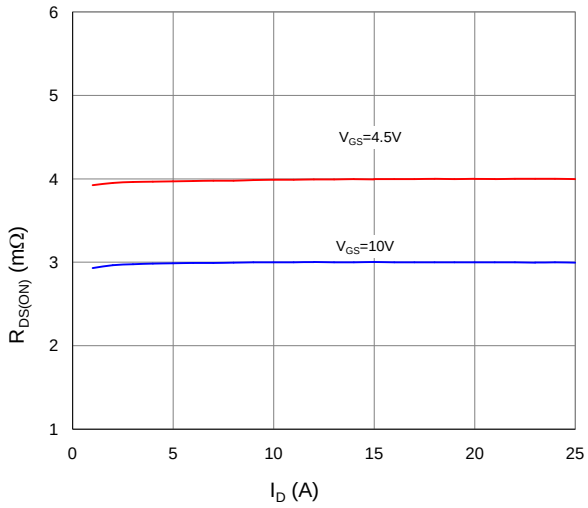


Figure 4. Normalized On-Resistance vs. Junction Temperature

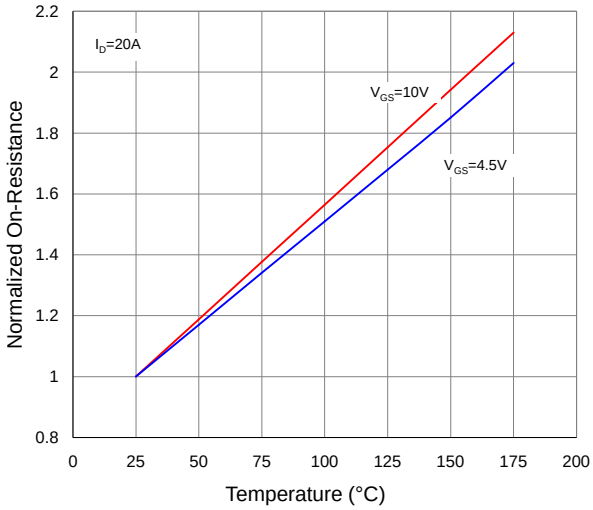


Figure 5. Typical Transfer Characteristics

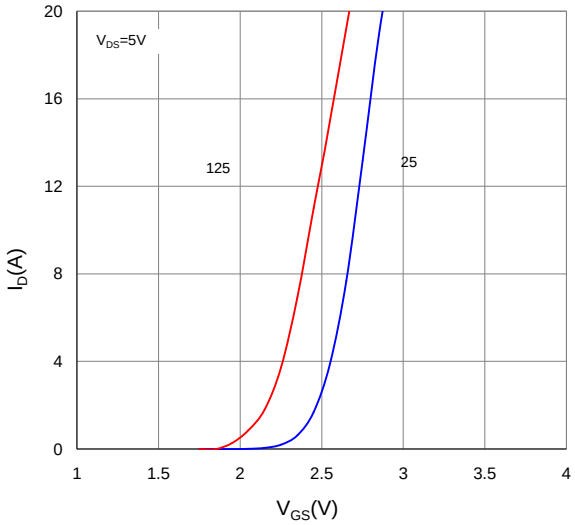


Figure 6. Typical Source-Drain Diode Forward Voltage

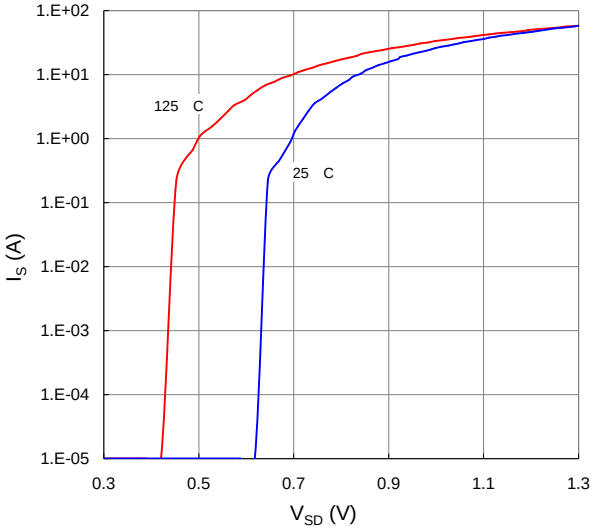


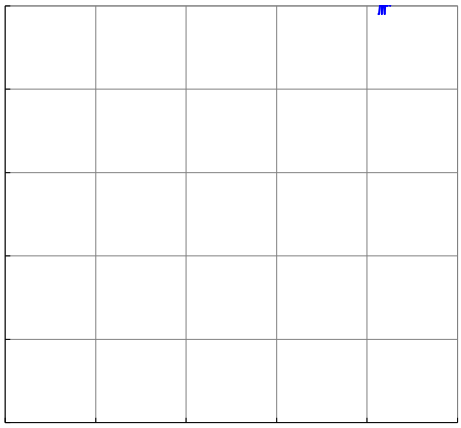
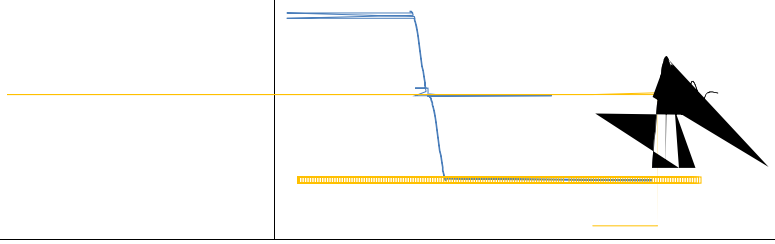
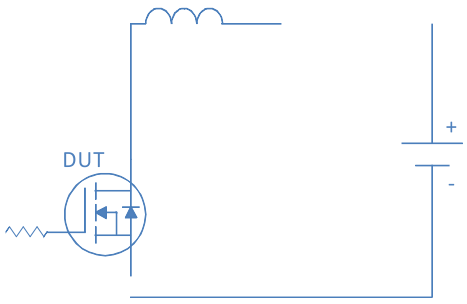
Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage	Figure 8. Typical Capacitance vs. Drain-to-Source Voltage
	

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	
	

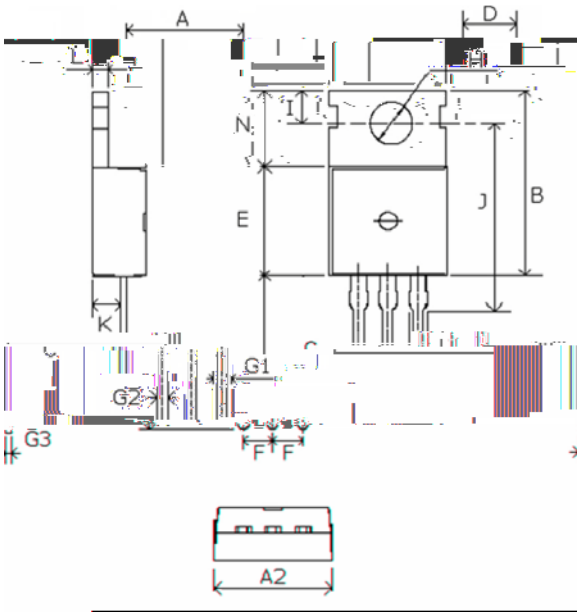
Gate Charge Test	

Uclamped Inductive Switching (UIS) Test	
	

Diode Recovery Test	

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