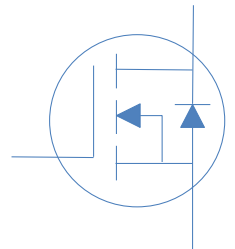
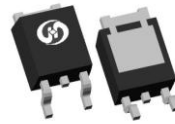


100V N-Ch Power MOSFET

D

V_{DS}	100	V
$R_{DS(on),typ}$	22	m
I_D (Silicon Limited)	31	A
I_D (Package Limited)	24	A

D



Part Number	Package	Marking
HGD230N10A	TO-252	GD230N10A

Absolute Maximum Ratings at T_J

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C	31	A
		T_C	22	
		T_C	24	
Continuous Drain Current (Package Limited)		T_C	24	
Drain to Source Voltage	V_{DS}	-	100	V
Gate to Source Voltage	V_{GS}	-	20	V
Pulsed Drain Current	I_{DM}	-	100	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.4mH, T_C$	20	mJ
Power Dissipation	P_D	T_C	52	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	R	2.9	
Thermal Resistance Junction-Ambient	R	50	

Electrical Characteristics at T_j
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	3	4	
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} =0V, V _{DS} =100V, T _j	-	-	1	A
		V _{GS} =0V, V _{DS} =100V, T _j	-	-	100	
Gate to Source Leakage Current	I _{GSS}	V _{GS} V _{DS} =0V	-	-	100	nA
Drain to Source on Resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A	-	22	25	m
Transconductance	g _{fs}	V _{DS} =5V, I _D =10A	-	19	-	S
Gate Resistance	R _G	V _{GS} =0V, V _{DS} Open, f=1MHz	-	1.7	-	

Dynamic Characteristics

Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=1MHz	-	723	-	pF
Output Capacitance	C _{oss}		-	107	-	
Reverse Transfer Capacitance	C _{rss}		-	7.6	-	
Total Gate Charge	Q _g	V _{DD} =50V, I _D =10A, V _{GS} =10V	-	11	-	nC
Gate to Source Charge	Q _{gs}		-	3	-	
Gate to Drain (Miller) Charge	Q _{gd}		-	3	-	
Turn on Delay Time	t _{d(on)}	V _{DD} =50V, I _D =10A, V _{GS} =10V, R _G =10 Ω	-	6	-	ns
Rise time	t _r		-	3	-	
Turn off Delay Time	t _{d(off)}		-	10	-	
Fall Time	t _f		-	3	-	

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 =10A, dI _F /dt=500A/ s	-	33	-	ns
Reverse Recovery Charge	Q _{rr}		-	132	-	nC

Fig 1. Typical Output Characteristics

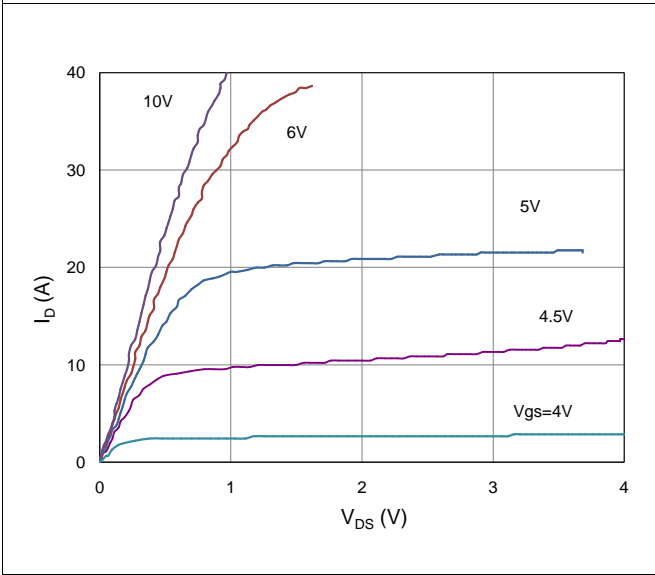


Figure 2. On-Resistance vs. Gate-Source Voltage

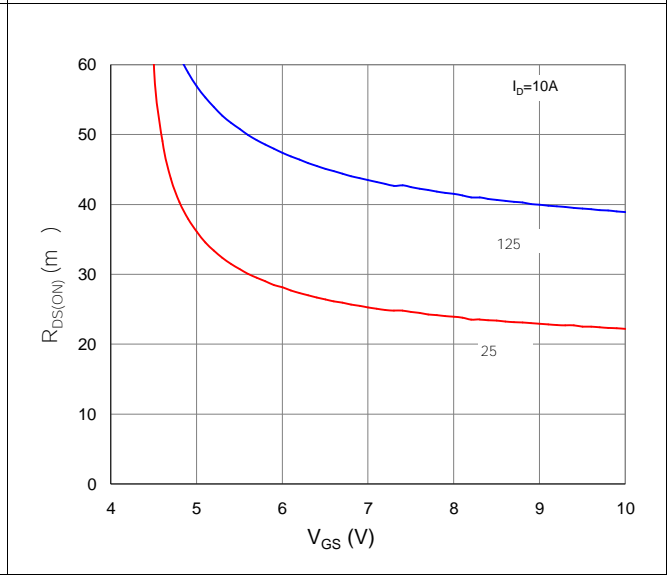


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

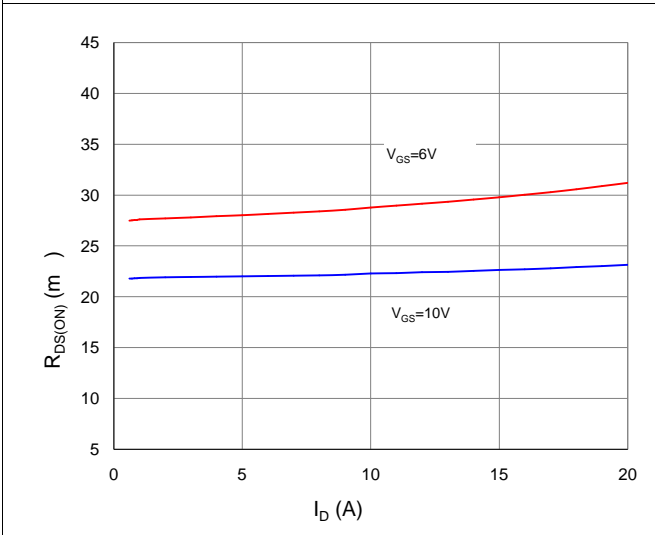


Figure 4. Normalized On-Resistance vs. Junction Temperature

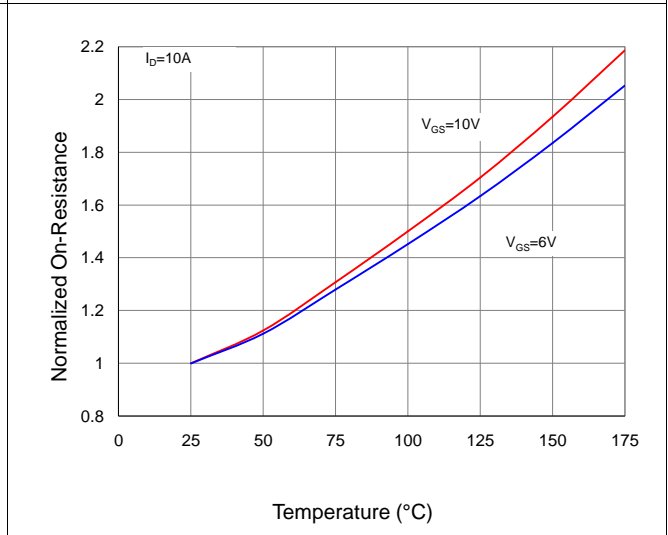


Figure 5. Typical Transfer Characteristics

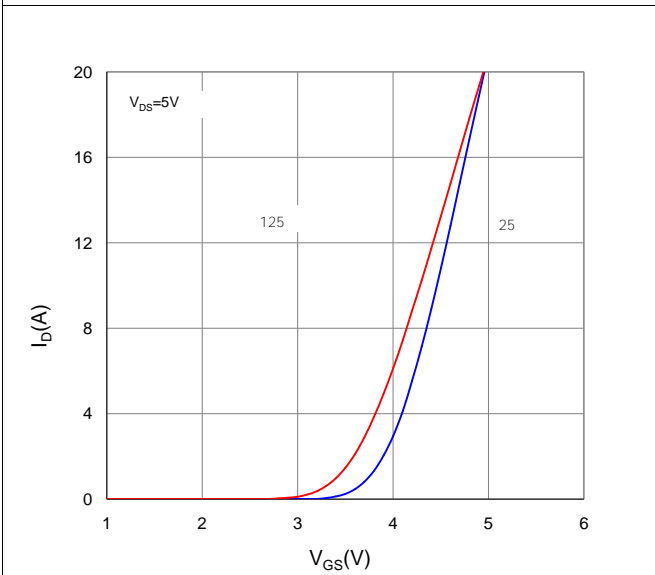


Figure 6. Typical Source-Drain Diode Forward Voltage

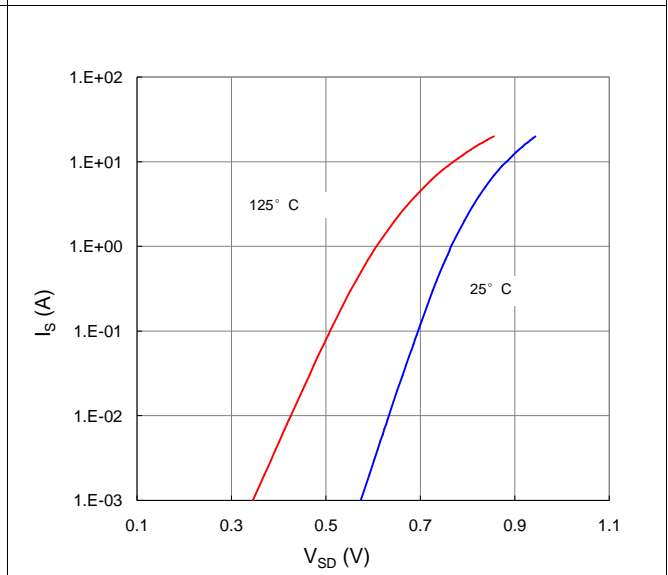


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

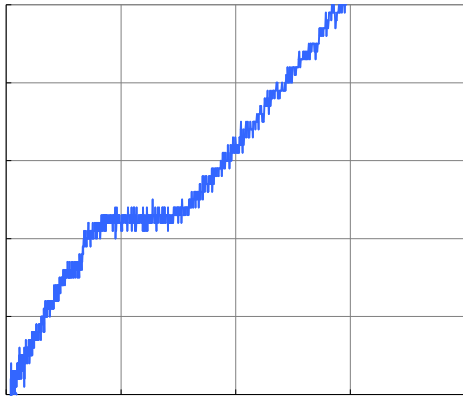


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

Figure 9. Maximum Safe Operating Area

Figure 10. Maximum Drain Current vs. Case Temperature

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

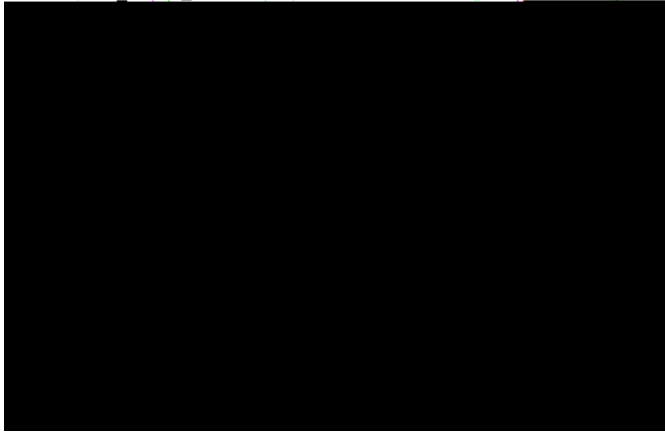
Inductive switching Test

Gate Charge Test

Uclamped Inductive Switching (UIS) Test

DioMd Indulam.er 1.0

TO-252, 3 leads



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
E	6.40	6.60	6.731
L	1.40	1.52	1.77
L1	2.743 REF		
L2	0.508 BSC		
L3	0.89	--	1.27
L4	0.64	--	1.01
L5	--	--	--
D	6.00	6.10	6.223
-U	0.10	0.10	0.10
EP	0.25	0.25	0.25
EP2	0.25	0.25	0.25
EP3	0.25	0.25	0.25
EP4	0.25	0.25	0.25
EP5	0.25	0.25	0.25
EP6	0.25	0.25	0.25
EP7	0.25	0.25	0.25
EP8	0.25	0.25	0.25
EP9	0.25	0.25	0.25
EP10	0.25	0.25	0.25
EP11	0.25	0.25	0.25
EP12	0.25	0.25	0.25
EP13	0.25	0.25	0.25
EP14	0.25	0.25	0.25
EP15	0.25	0.25	0.25
EP16	0.25	0.25	0.25
EP17	0.25	0.25	0.25
EP18	0.25	0.25	0.25
EP19	0.25	0.25	0.25
EP20	0.25	0.25	0.25
EP21	0.25	0.25	0.25
EP22	0.25	0.25	0.25
EP23	0.25	0.25	0.25
EP24	0.25	0.25	0.25
EP25	0.25	0.25	0.25
EP26	0.25	0.25	0.25
EP27	0.25	0.25	0.25
EP28	0.25	0.25	0.25
EP29	0.25	0.25	0.25
EP30	0.25	0.25	0.25
EP31	0.25	0.25	0.25
EP32	0.25	0.25	0.25
EP33	0.25	0.25	0.25
EP34	0.25	0.25	0.25
EP35	0.25	0.25	0.25
EP36	0.25	0.25	0.25
EP37	0.25	0.25	0.25
EP38	0.25	0.25	0.25
EP39	0.25	0.25	0.25
EP40	0.25	0.25	0.25
EP41	0.25	0.25	0.25
EP42	0.25	0.25	0.25
EP43	0.25	0.25	0.25
EP44	0.25	0.25	0.25
EP45	0.25	0.25	0.25
EP46	0.25	0.25	0.25
EP47	0.25	0.25	0.25
EP48	0.25	0.25	0.25
EP49	0.25	0.25	0.25
EP50	0.25	0.25	0.25

