Part Number	Package	Marking
HGD029NE4SL	TO-252	

HGD029NE4SL

45V N-Ch Power MOSFET

V_{DS}		45	V
$R_{DS(on),typ}$	V_{GS}=10V	2.5	m :
			m :
		156	A
$I_{D\ (Package\ Limited)}$		70	A70

Feature

- Optimized for high speed switching,Logic Level
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested,100% Rg Tested
- Lead Free, Halogen Free

Application

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- Power Tools
- UPS
- Motor Control

TO-252

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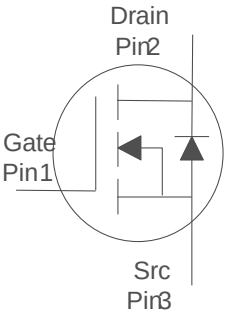


		GD029NE4SL

Parameter	Symbol			
Continuous Drain Current (Silicon Limited)	I_D	T_C		A
		T_C	110	
Continuous Drain Current (Package Limited)		T_C		
Drain to Source Voltage	V_{DS}	-	45	V
Gate to Source Voltage	V_{GS}	-	±20	
Pulsed Drain Current	I_{DM}	-	350	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.5mH, T_C	100	mJ
Power Dissipation	P_D	T_C	150	:
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	:
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	46	:

Electrical Characteristics at T_j X Q O H V V R W K H U Z L V H V S H F L I L H G

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=250 PA	45	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250 PA	1	1.4	2.2	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=45V, T_j	-	-	1	PA
		V_{GS}=0V, V_{DS}=45V, T_j	-	-	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	-	2.5	2.9	m :
		V_{GS}=4.5V, I_D=20A	-	3.2	4.0	m :
Transconductance	g_{IV}	V_{DS}=5V, I_D=20A	-	65	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} 2 S H Q I 0 +]	-	1.6	-	:

Dynamic Characteristics

Input Capacitance				3322	-	
Output Capacitance	C_{oss}	V_{GS}=0V, V_{DS} 9 I 0 +]			-	pF
			-	96	-	
Total Gate Charge (10V)	Q_g (10V)		-	50	-	
	Q_{gs}	V_{DD}=20V, I_D=20A, V_{GS}=10V			-	nC
Gate to Drain (Miller) Charge	Q_{gd}				-	
	$t_{d(on)}$				-	
Rise time		V_{DD}=20V, I_D=20A, V_{GS}=10V,	-		-	ns
7 X U Q R I I ' H O D \ 7 L P H	$t_{G\ RII}$	R_G=10 : ,		57	-	
Fall Time	t			18	-	

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=20V, I_F=20A, dI$_F$ G W	-	40	-	ns
Reverse Recovery Charge	Q_{rr}		-	64	-	nC

Fig 1. Typical Output Characteristics

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

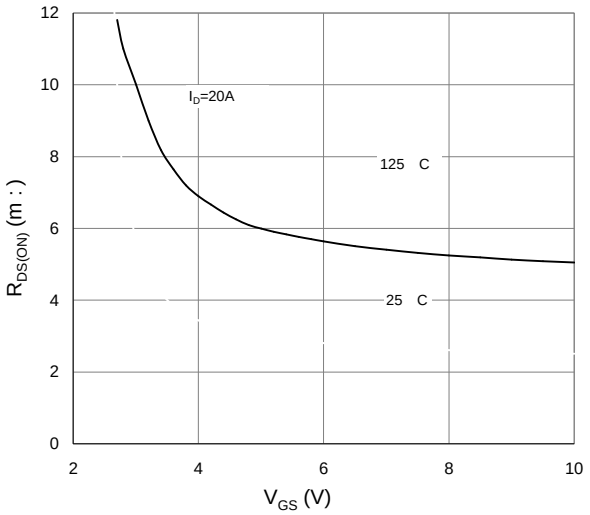
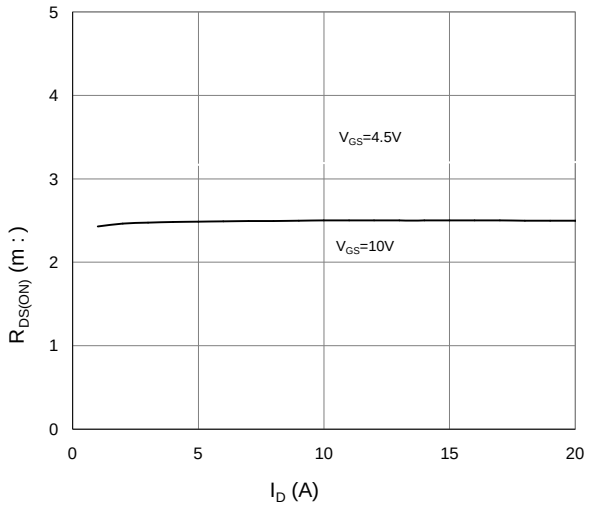


Figure 3. On-Resistance vs. Drain Current and Gate Voltage



) L J X U H 7 \ S L F D O 7 U D Q V I H U & K D U D F W H U L V W L F V

Figure 6. Typical Source-Drain Diode Forward Voltage

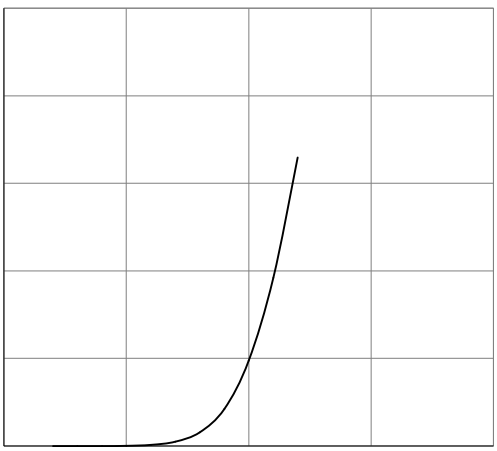


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

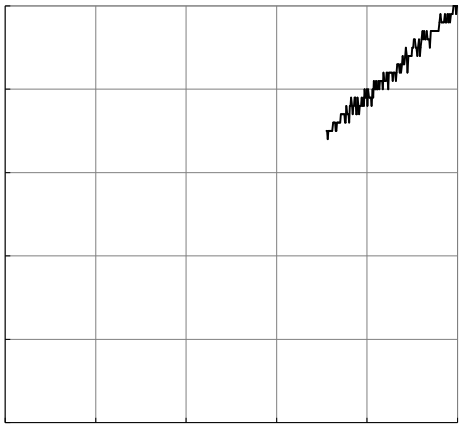


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

)LJXUH 0D[LPXP 6DIH 2SHUDWLQJ $UHD

Figure 10. Maximun Drain Current vs. Case Temperature

)LJXUH 1RUPDOL]HG 0D[LPXP 7UDQVLHQW 7KHUPDO ,PSHGDQFH -XQFWLR

Inductive switching Test	

Gate Charge Test	

Uclamped Inductive Switching (UIS) Test	

Diode Recovery Test	

Package Outline

TO-252, 2 leads