



HSMM4R8N200

General Description

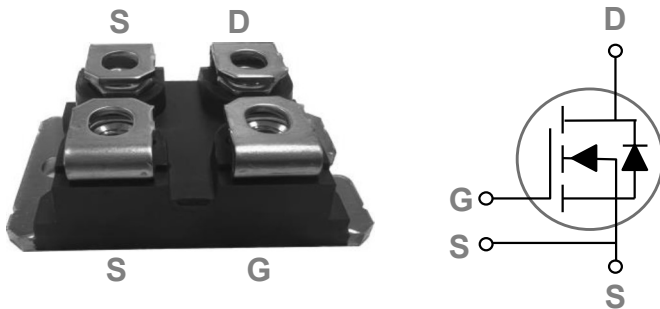
These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

BVDSS	RDS(ON)	ID
200V	4.8mΩ	230A

Features

- 200V,230A, RDS(ON) =4.8mΩ @VGS = 10V
- Improved dv/dt capability
- Fast switching
- 100% EAS Guaranteed
- Green Device Available

SOT-227 Pin Configuration



Absolute Maximum Ratings $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current – Continuous ($T_c=25^\circ\text{C}$)	230	A
	Drain Current – Continuous ($T_c=100^\circ\text{C}$)	147	A
I_{DM}	Drain Current – Pulsed ¹	920	A
EAS	Single Pulse Avalanche Energy ²	4.5	J
IAS	Single Pulse Avalanche Current ²	95	A
P_D	Power Dissipation ($T_c=25^\circ\text{C}$)	695	W
	Power Dissipation – Derate above 25°C	5.6	W/ $^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	0.18	$^\circ\text{C}/\text{W}$



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Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	200	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =200V, V _{GS} =0V, T _J =25°C	---	---	3	μA
		V _{DS} =160V, V _{GS} =0V, T _J =85°C	---	---	30	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA

On Characteristics

R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =150A	---	4	4.8	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2.5	3.5	4.5	V

Dynamic and switching Characteristics³

Q _g	Total Gate Charge	V _{DS} =100V, V _{GS} =10V, I _D =120A	---	250	---	nC
Q _{gs}	Gate-Source Charge		---	56	---	
Q _{gd}	Gate-Drain Charge		---	72	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =100V, V _{GS} =10V, R _G =6Ω I _D =120A	---	50	---	ns
T _r	Rise Time		---	80	---	
T _{d(off)}	Turn-Off Delay Time		---	100	---	
T _f	Fall Time		---	120	---	
C _{iss}	Input Capacitance	V _{DS} =100V, V _{GS} =0V, F=1MHz	---	14000	---	pF
C _{oss}	Output Capacitance		---	1000	---	
C _{rss}	Reverse Transfer Capacitance		---	48	---	
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	0.8	---	Ω

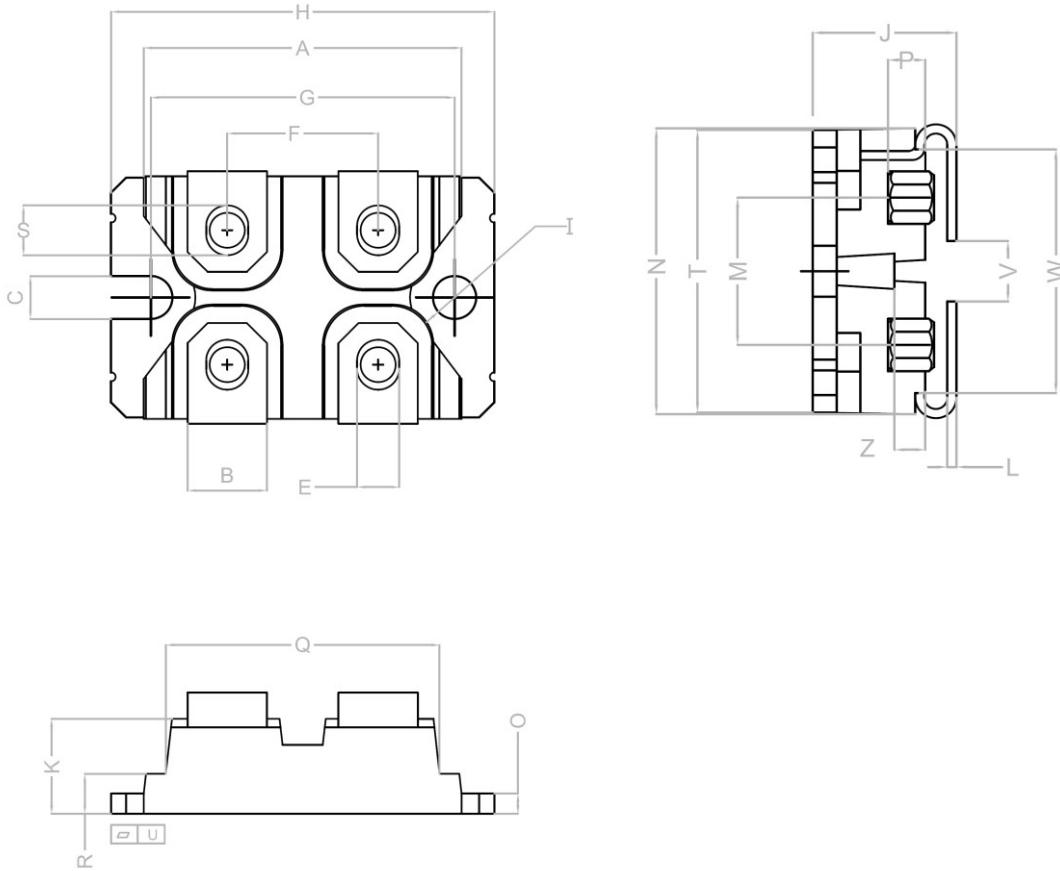
Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	230	A
I _{SM}	Pulsed Source Current		---	---	460	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =100A, T _J =25°C	---	---	1.5	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=50V, V_{GS}=10V, L=1mH, I_{AS}=95A, R_G=25Ω, Starting T_J=25°C..
3. Essentially independent of operating temperature.

SOT-227 PACKAGE INFORMATION



SYMBOL	mm		SYMBOL	mm	
	MIN	MAX		MIN	MAX
A	31.40	31.60	N	24.40	25.00
B	7.70	8.10	O	1.90	2.10
C	4.20	4.40	P	2.92	3.32
D	4.20	4.40	Q	26.60	27.00
E	4.10	4.40	R	3.80	4.20
F	14.90	15.10	S	4.95	5.45
G	30.10	30.30	T	23.70	24.30
H	38.00	38.40	U	0.00	0.10
J	12.00	12.60	V	3.50	5.50
K	9.35	9.65	W	20.15	20.45
L	0.74	0.84	Z	2.50	2.70
M	12.30	12.70			