

N-Channel Enhancement Mode Power MOSFET

Description

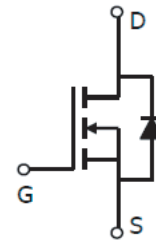
The RM5N150S8 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

General Features

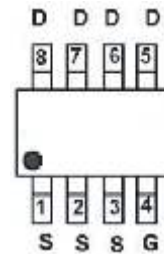
- $V_{DS} = 150V, I_D = 4.6A$
 $R_{DS(ON)} < 75m\Omega @ V_{GS}=10V$ (Typ:63m Ω)
 $R_{DS(ON)} < 88m\Omega @ V_{GS}=4.5V$ (Typ:70m Ω)
- Special process technology for high ESD capability
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current

Application

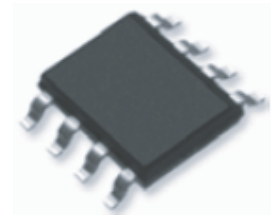
- DC/DC Primary Side Switch
- Telecom/Server
- Synchronous Rectification
- Halogen-free



Schematic diagram



Marking and pin assignment



SOP-8 top view

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
5N150	RM5N150S8	SOP-8	Ø330mm	12mm	4000 units

Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	4.6	A
Drain Current-Continuous($T_C=100^\circ C$)	$I_D(100^\circ C)$	2.9	A
Pulsed Drain Current	I_{DM}	35	A
Maximum Power Dissipation	P_D	3.1	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{\theta JA}$	40	$^\circ C/W$
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Electrical Characteristics (T_A=25°C unless otherwise noted)

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	150	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250μA	1	2	3	
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} =0V, V _{DS} =150V, T _J =25°C	-	-	1	μA
		V _{GS} =0V, V _{DS} =150V, T _J =100°C	-	-	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 =5A	-	63	75	mΩ
		V _{GS} =4.5V, I _D =4A	-	70	88	
Transconductance	g _{fs}	V _{DS} =5V, I _D =5A	-	18	-	S
Gate Resistance	R _G	V _{GS} =0V, V _{DS} Open, f=1MHz	-	5.0	-	Ω

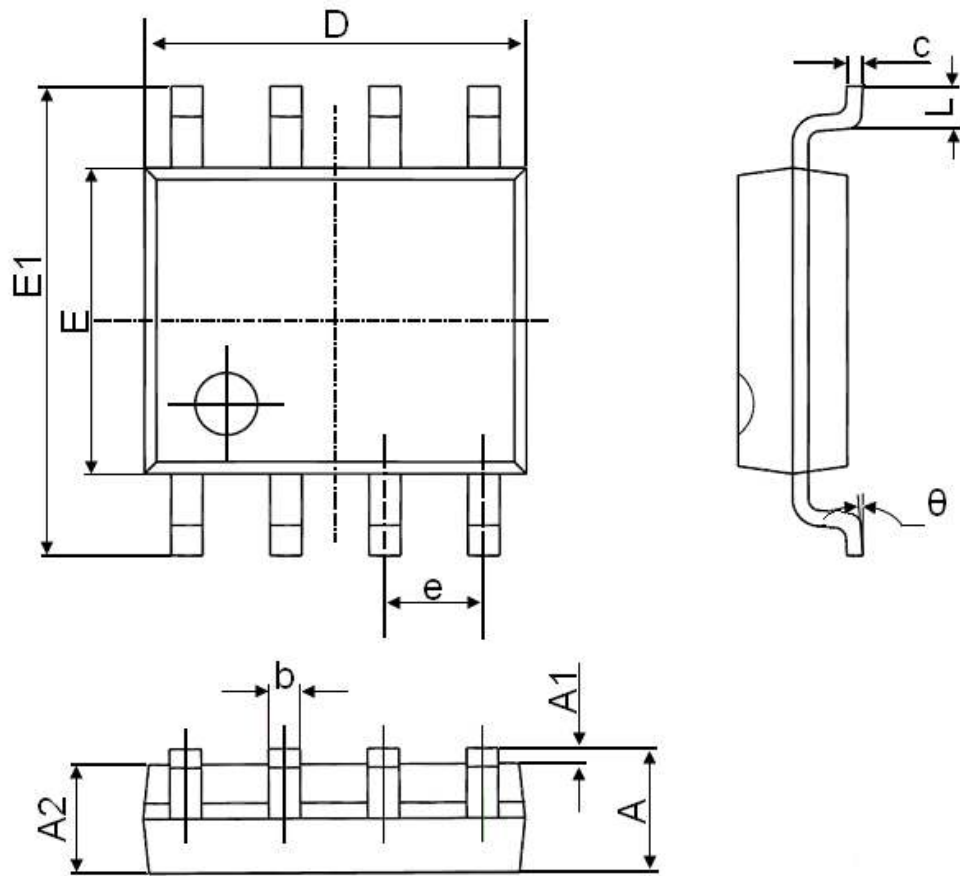
Dynamic Characteristics

Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =75V, f=1MHz	-	625	-	pF
Output Capacitance	C _{oss}		-	37	-	
Reverse Transfer Capacitance	C _{rss}		-	13	-	
Total Gate Charge (10V)	Q _g (10V)	V _{DD} =75V, I _D =5A, V _{GS} =10V	-	11.6	-	nC
Total Gate Charge (4.5V)	Q _g (4.5V)		-	6.5	-	
Gate to Source Charge	Q _{gs}		-	1.2	-	
Gate to Drain (Miller) Charge	Q _{gd}		-	4	-	
Turn on Delay Time	t _{d(on)}	V _{DD} =75V, I _D =5A, V _{GS} =10V, R _G =10Ω,	-	10	-	ns
Rise time	t _r		-	7	-	
Turn off Delay Time	t _{d(off)}		-	14	-	
Fall Time	t _f		-	3	-	

Reverse Diode Characteristics

Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _F =5A	-	0.9	1.2	V
Reverse Recovery Time	t _{rr}	V _R =75V, I _F =5A, dI _F /dt=100A/μs	-	50	-	ns
Reverse Recovery Charge	Q _{rr}		-	70	-	nC

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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