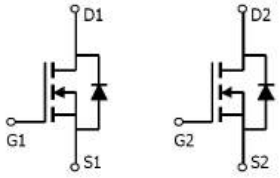
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RMD8N30D3

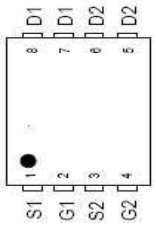
Dual N-Channel Enhancement Mosfet

Features

- 30V,8A
  $R_{DS(ON)}$ <20mΩ @V_{GS}=10V TYP: 15mΩ
  $R_{DS(ON)}$ <36mΩ @V_{GS}=4.5V TYP: 28mΩ
- Advanced Trench technology
- Excellent RDS(ON) and Low Gate Charge
- Fast switching speed



Schematic diagram



pin assignment

Applications

- Load Switch
- PWM Application
- Power management
- Halogen-free

Package Marking and Ordering Information

Device Marking	Device	Package	Packaging Code	Reel Size	Quantity(Pcs)	Carton(Pcs)
D8N30	RMD8N30D3	DFN3X3	-W	13inch	5000	80000

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C =25℃)	I_D	8	A
Continuous Drain Current (T_C=100℃)	I_D	5	A
Pulsed Drain Current[1]	I_{DM}	40	A
Single Pulsed Avalanche Energy [2]	E_{AS}	10	mJ
Power Dissipation (T_C=25℃)	P_D	2	W
Thermal Resistance from Junction to Case[3]	$R_{\theta JC}$	25	℃/W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-50~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

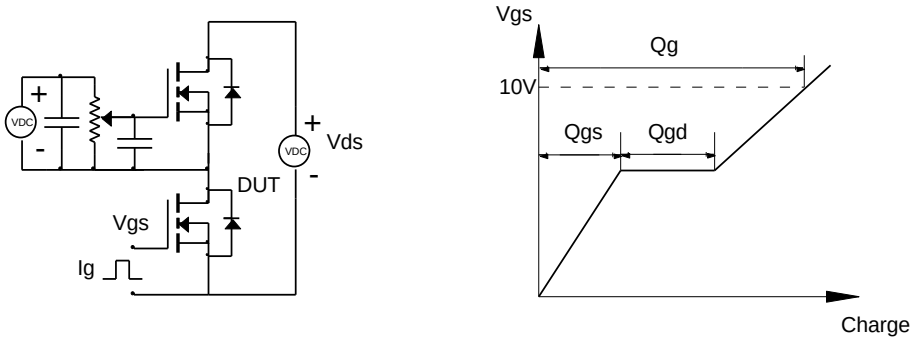
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V, V_{GS} = 0V,T_J=25℃	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.5	2.5	V
Drain-source on-resistance(3)	$R_{DS(on)}$	V_{GS} =10V, I_D =8A	-	15	20	mΩ
		V_{GS} =4.5V, I_D =6A		28	36	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =1.0MHz	-	350	-	pF
Output Capacitance	C_{oss}		-	55	-	
Reverse Transfer Capacitance	C_{rss}		-	35	-	
Gate Resistance	R_G	f =1.0MHz		3.2		Ω
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V, I_D=1A, R_G=3.3Ω V_{GS}=10V	-	8	-	ns
Turn-on rise time	t_r		-	7	-	
Turn-off delay time	$t_{d(off)}$		-	15	-	
Turn-off fall time	t_f		-	5	-	
Total Gate Charge	Qg	V_{DS}=15V, I_D=8A, V_{GS}=4.5V	-	4.1	-	nC
Gate-Source Charge	Qgs		-	1.1	-	
Gate-Drain Charge	Qgd		-	2.5	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=1.1A	-	-	1.0	V
Diode Forward current	I_S	T_C=25℃	-	-	8	A
Body Diode Reverse Recovery Time	trr	T_J=25℃， IF=8A,di/dt=100A/us		15		ns
Body Diode Reverse Recovery Charge	Qrr	T_J=25℃， IF=8A,di/dt=100A/us		14		uc

Notes:

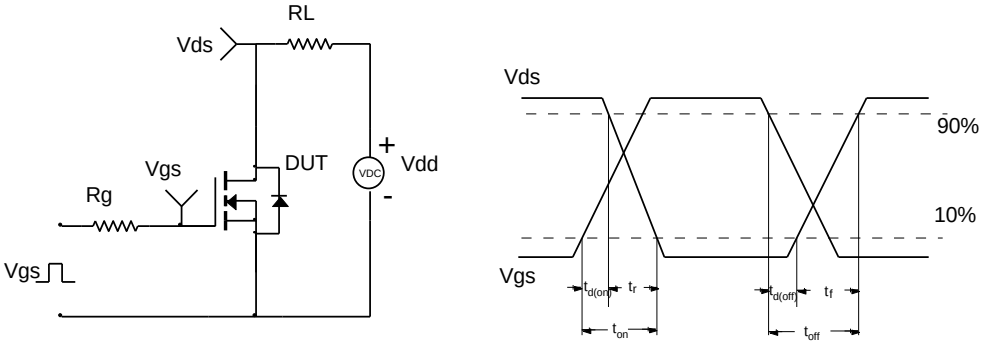
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: TJ=25℃, VDD=15V, VG=10V, RG=25Ω, L=0.5mH IAS=4.5A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Test Circuit

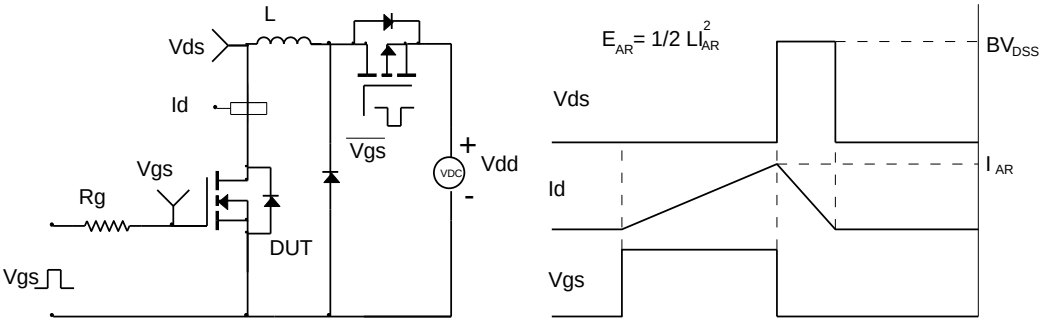
Gate Charge Test Circuit & Waveform



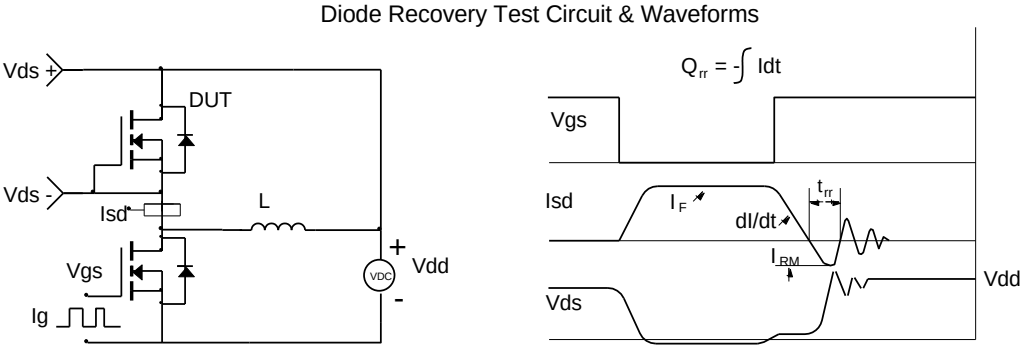
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



RATING AND CHARACTERISTICS CURVES (RMD8N30D3)

Figure1: Output Characteristics

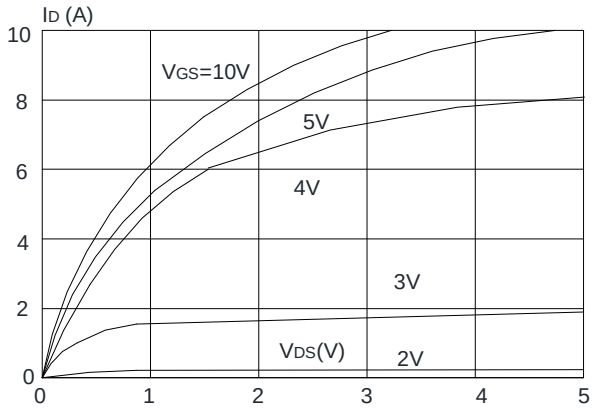


Figure 2: Typical Transfer Characteristics

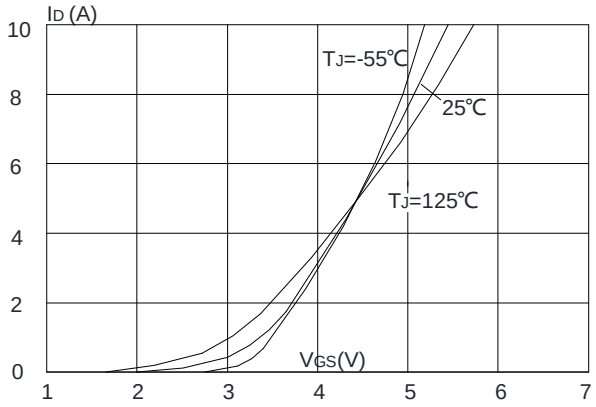


Figure 3: On-resistance vs. Drain Current

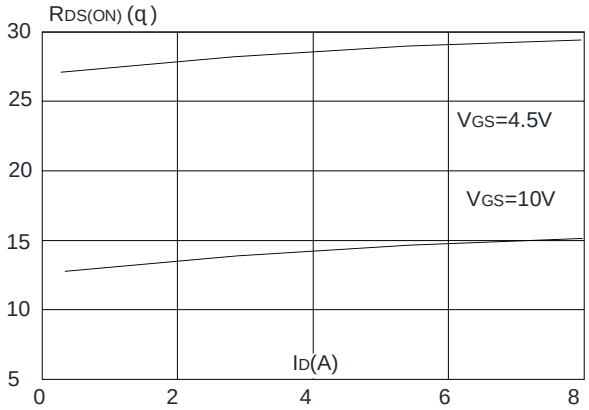


Figure 4: Body Diode Characteristics

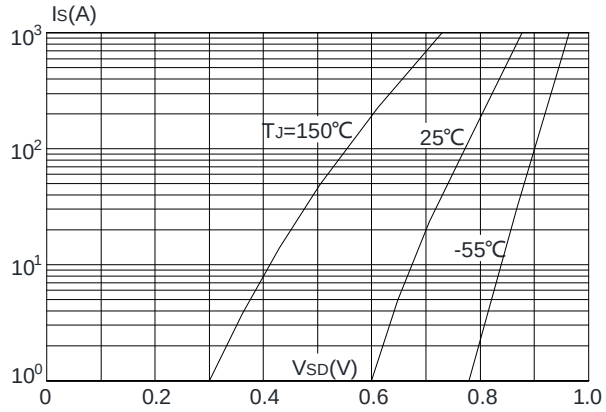


Figure 5: Gate Charge Characteristics

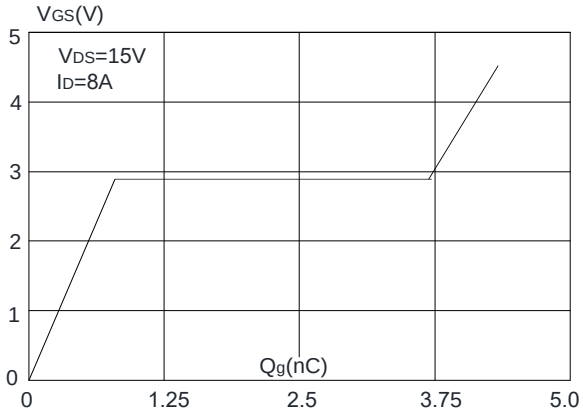
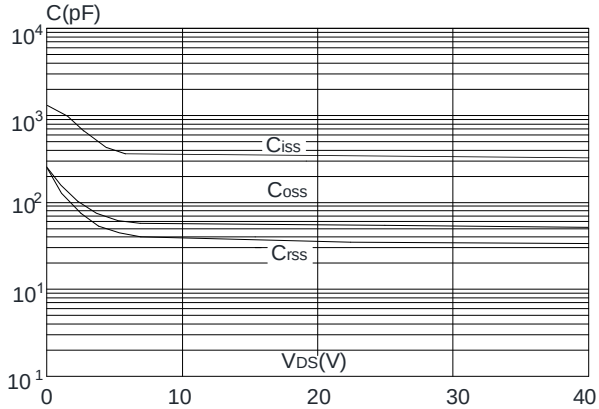


Figure 6: Capacitance Characteristics



RATING AND CHARACTERISTICS CURVES (RMD8N30D3)

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

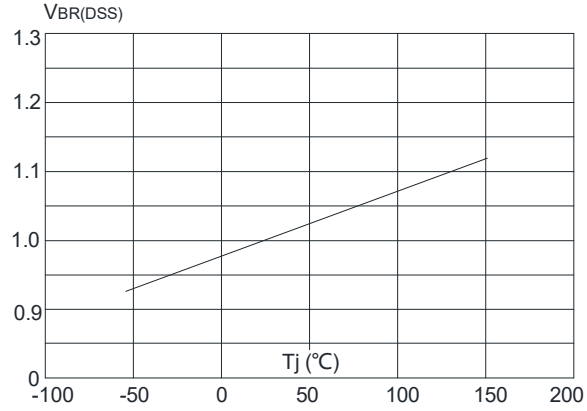


Figure 8: Normalized on Resistance vs. Junction Temperature

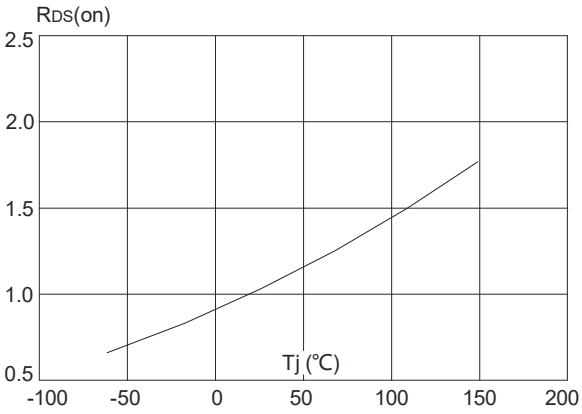


Figure 9: Maximum Safe Operating Area

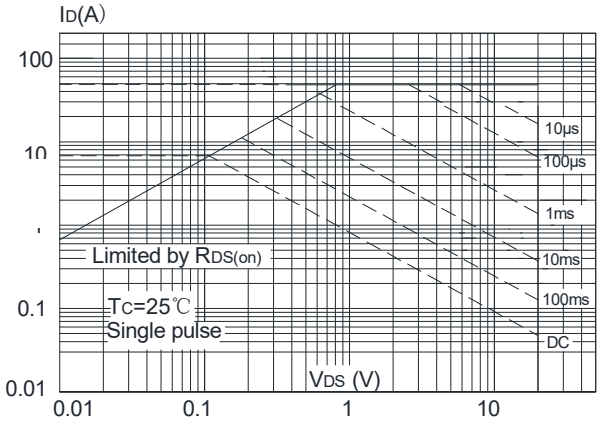


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

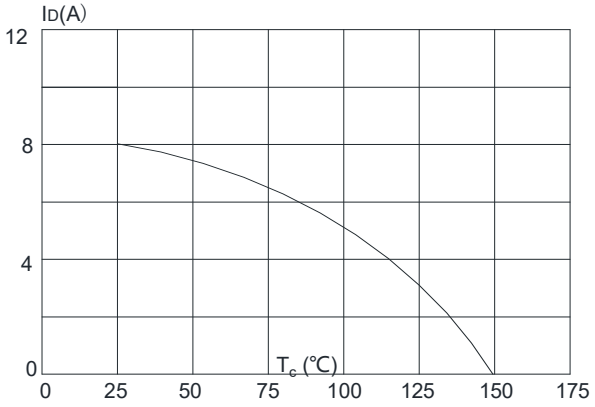
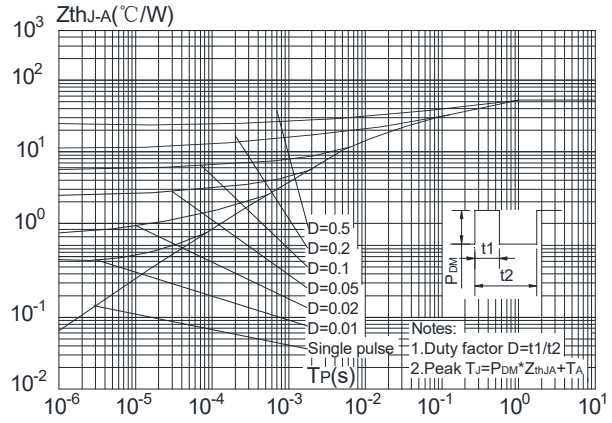
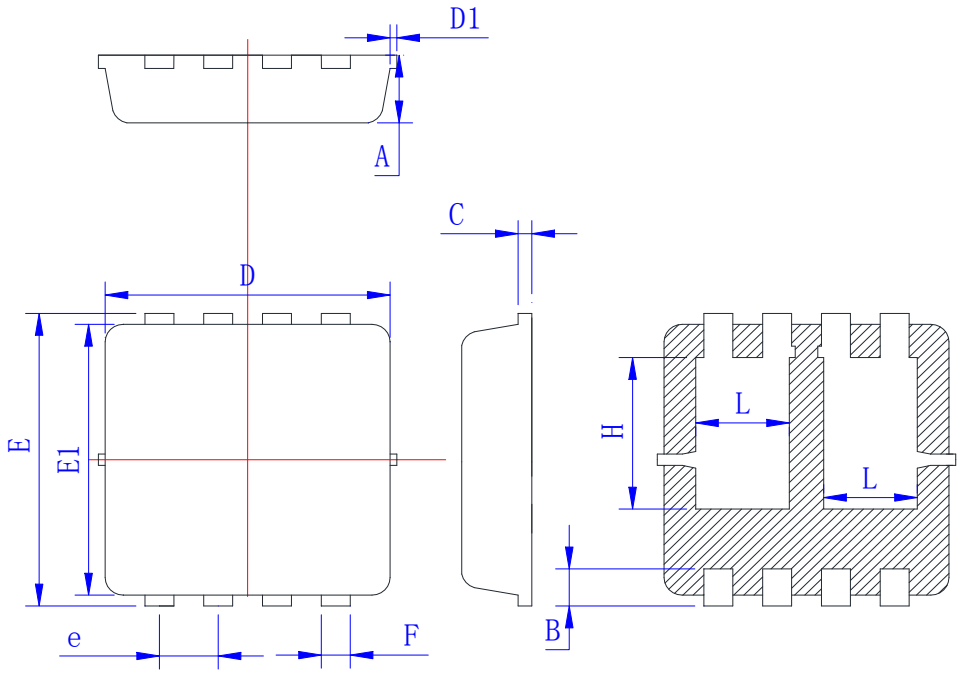


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



DFN3X3 Package Information



Symbol	Min	Typ	Max
A	0.725	0.775	0.825
B	0.28	0.38	0.48
C	0.13	0.15	0.20
D	3.05	3.15	3.25
D1			0.10
E	3.25	3.35	3.45
E1	3.0	3.1	3.2
e	0.60	0.65	0.70
F	0.27	0.32	0.37
H	1.63	1.73	1.83
L	0.93	1.03	1.13

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