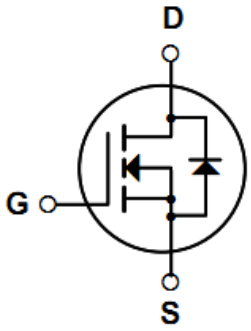
Description

This N-Channel MOSFET 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.

Features

1) V_{DS}=100V,I_D=9.6A,$R_{DS(ON)}$<140m Ω @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.



Ratings T_C=25℃,unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-	9.6	A
	Continuous Drain Current-T_C=100℃	6.5	
	Pulsed Drain Current	58	
E_{AS}	Single Pulse Avalanche Energy[5]	150	mJ
P_D	Power Dissipation	30	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	℃

Thermal Characteristics

Symbol	Parameter	Ratings	Units
$R_{\Theta JC}$	Thermal Resistance,Junction to Case[2]	5	℃/W
$R_{\Theta JA}$	Thermal Resistance,Junction to Ambient	-	

Package Marking and Ordering Information

Part NO.	Marking	Package
RYN100BAC	RYN100BAC	TO-251

Electrical Characteristics T_C=25℃ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V, I_D=250μA	100	110	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=100V	-	-	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	-	-	±100	nA
On Characteristics[3]						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.2	1.8	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=6A	-	108	140	mΩ
		V_{GS}=4.5V,I_D=	-	-	-	
G_{FS}	Forward Transconductance	V_{DS}=25V, I_D=6A	3.5	-	-	S
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	-	690	-	pF
C_{oss}	Output Capacitance		-	120	-	
C_{rss}	Reverse Transfer Capacitance		-	90	-	
Switching Characteristics[4]						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=30V, I_D=2A, V_{GS}=10V,R_{GEN}=2.5Ω	-	11	-	ns
t_r	Rise Time		-	7.4	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	35	-	ns
t_f	Fall Time		-	9.1	-	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=30V, I_D=3A	-	15.5	-	nC
Q_{gs}	Gate-Source Charge		-	3.2	-	nC
Q_{gd}	Gate-Drain “Miller” Charge		-	4.7	-	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[3]	V_{GS}=0V,I_S=9.6A	-	-	1.2	V
t_{rr}	Reverse Recovery Time	I_F=9.6A,di/dt=100A/μS	-	21	-	ns
Q_{rr}	Reverse Recovery Charge		-	97	-	nC

Notes:

1.Repetitive Rating: Pulse width limited by maximum junction temperature.

2.Surface Mounted on FR4 Board, t≤10 sec.

3.Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

4.Guaranteed by design, not subject to production

5.EAS condition：Tj=25° C,VDD=50V,VG=10V,L=0.5mH,Rg=25Ω

Typical Characteristics T_J=25℃ unless otherwise noted

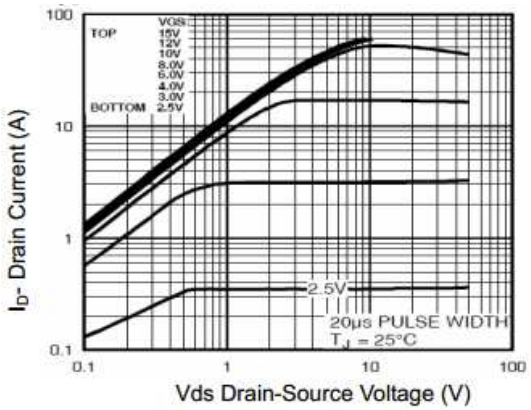


Fig.1 Output Characteristics

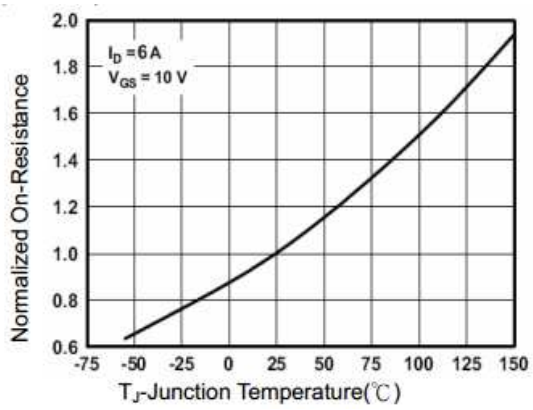


Fig.2 $R_{DS(ON)}$-Junction Temperature

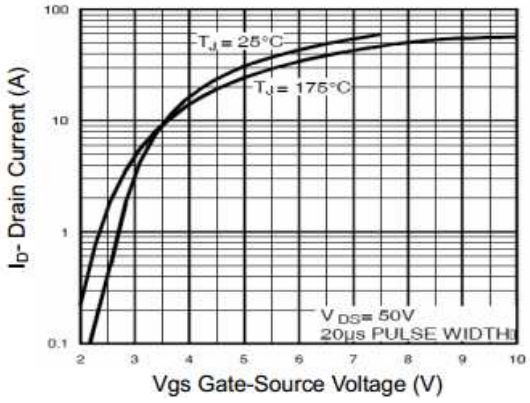


Fig.3 Transfer Characteristics

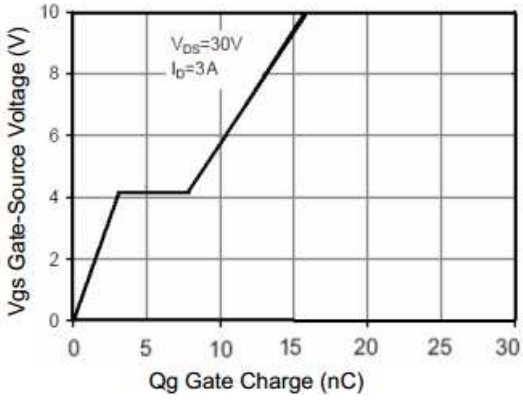


Fig.4 Gate Charge

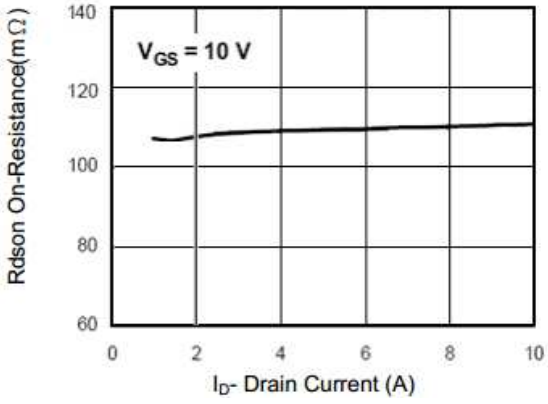


Fig.5 $R_{DS(ON)}$ –Drain Current

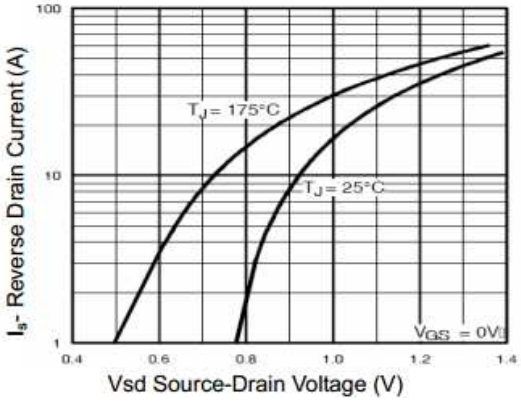


Fig.6 Sorurce-Drain Diode Forward