

IRFP150N

100V, 17mΩ typ., 75A N-Channel MOSFET

General Description

The IRFP150N uses advanced planar stripe DMOS technology and design to provide excellent $R_{DS(on)}$. These devices are well suited for low voltage applications such as audio amplifier, high efficiency switching DC/DC converters, and DC motor control.

Features

- Improved dv/dt capability
- 100% avalanche tested
- RoHS Compliant

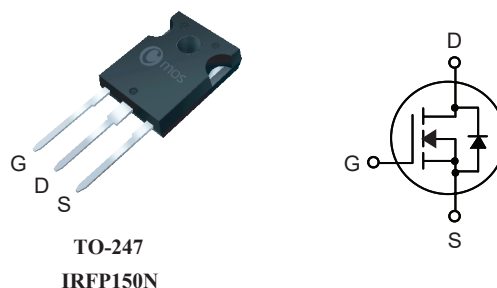
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	21mΩ	75A

Applications

- Switch Mode Power Supply
- PFC

TO-247 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	75	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	49	A
I_{DM}	Pulsed Drain Current	300	A
EAS	Single Pulse Avalanche Energy (Note 1)	2402	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	300	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.5	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	100	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =28A	---	17	21	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2.0	---	4.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =100V , V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D = 28A	---	35	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	0.8	---	Ω
Q _g	Total Gate Charge	V _{DS} =50V , I _D =28A V _{GS} =10V (note 2,3)	---	105	---	nC
Q _{gs}	Gate-Source Charge		---	15	---	
Q _{gd}	Gate-Drain Charge		---	45	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =50V , I _D =28A R _G =2.5Ω (note 2,3)	---	25	---	ns
T _r	Rise Time		---	30	---	
T _{d(off)}	Turn-Off Delay Time		---	70	---	
T _f	Fall Time		---	20	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	2850	---	pF
C _{oss}	Output Capacitance		---	610	---	
C _{rss}	Reverse Transfer Capacitance		---	210	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	75	A
I _{SM}	Pulsed Source Current		---	---	300	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =28A	---	0.87	1.5	V
t _{rr}	Reverse Recovery Time	I _S = 28A , V _{GS} =0V	---	195	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt =100A/μs (note 2,3)	---	107	---	nC

Note :

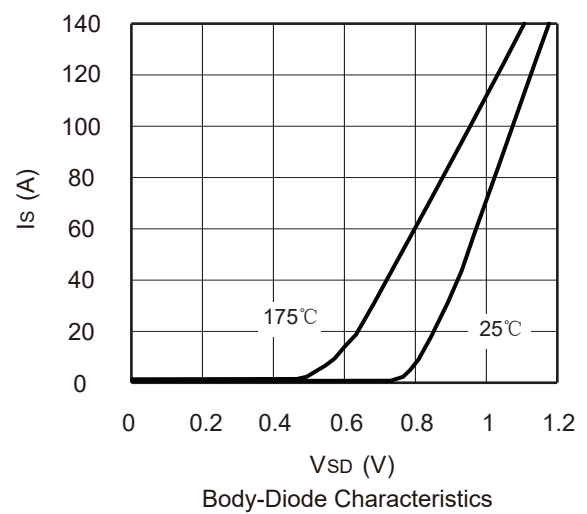
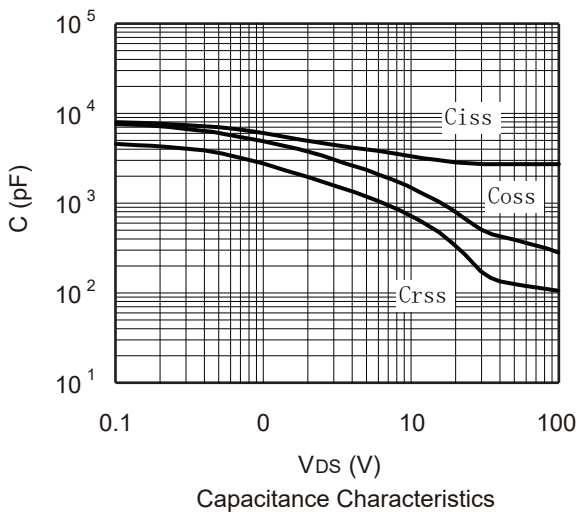
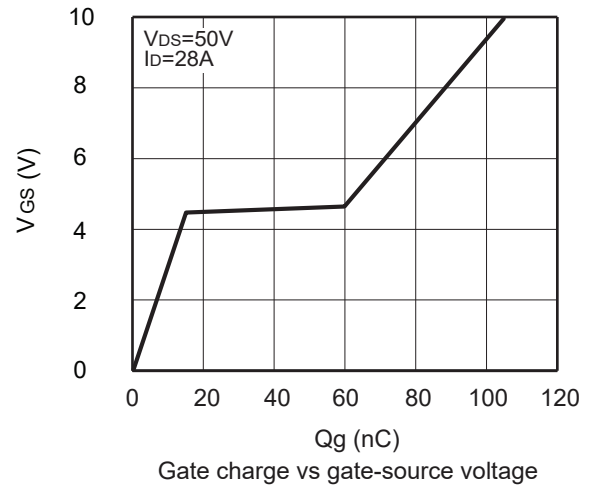
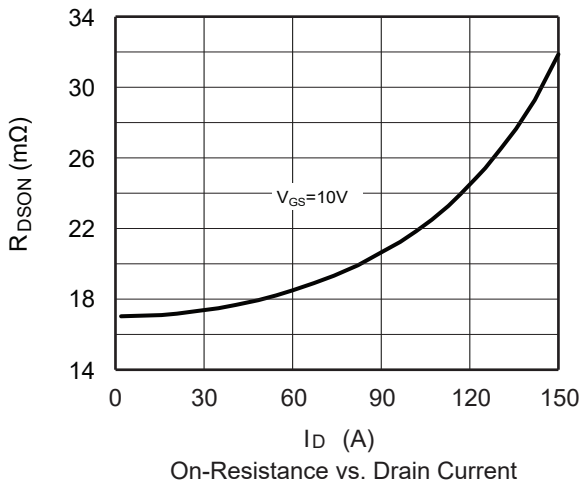
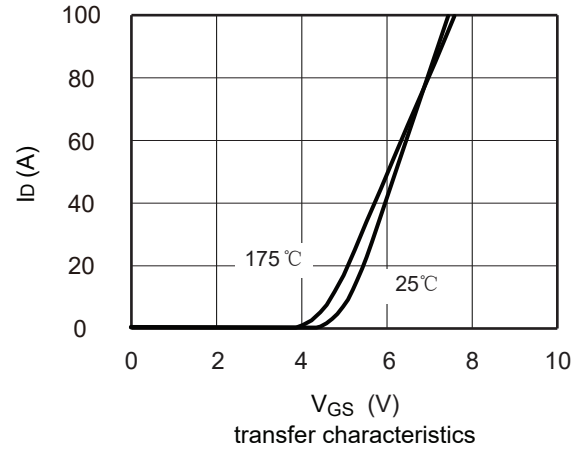
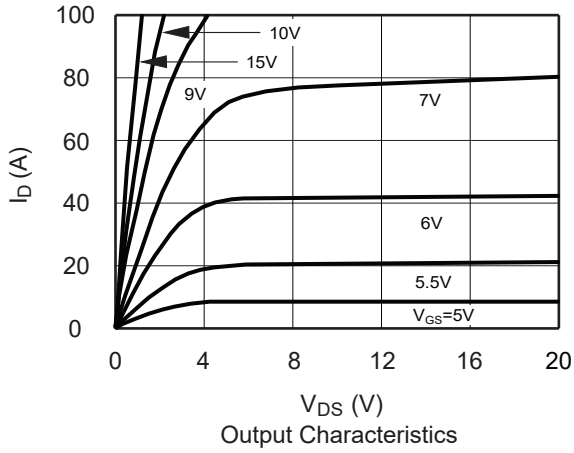
- 1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=5mH , I_{AS}=31A.
2. Pulse test: Pulse width≤300us, Duty cycles≤2%.
3. Essentially independent of operating temperature typical characteristics.

This product has been designed and qualified for the consumer market.

CMOS assumes no liability for customers' product design or applications.

CMOS reserves the right to improve product design , functions and reliability without notice.Please refer to the latest version of specification.

Typical Characteristics



Characteristics

