

General Description

These N-Channel enhancement mode power field effect transistors are produced using advanced technology which 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 switched mode power supplies, active power factor correction, electronic lamp ballasts based on half bridge topology.

Features

- Originative New Design
- 100% avalanche tested
- Fast switching
- Improved dv/dt capability
- Very Low Intrinsic Capacitances

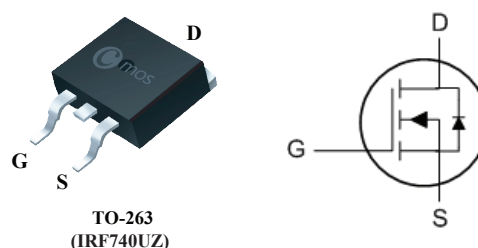
Product Summary

BVDSS	RDSON	ID
400V	0.45Ω	10A

Applications

- Charger
- Adaptor
- Power Supply

TO-263 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	400	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	10	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	6.3	A
I_{DM}	Pulsed Drain Current (Note 1)	30	A
EAS	Single Pulse Avalanche Energy (Note 2)	350	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	125	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	1	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	400	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=4A$	---	---	0.45	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=400V$, $V_{GS}=0V$	---	---	25	μA
		$V_{DS}=320V$, $T_C=125^{\circ}\text{C}$	---	---	250	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=4A$ (Note 3)	---	10	---	S
Q_g	Total Gate Charge	$I_D=10A$	---	65	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=320V$	---	9	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$ (Note 3,4)	---	30	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=200V$	---	15	---	ns
T_r	Rise Time	$I_D=10A$	---	27	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=9.1\Omega$	---	50	---	
T_f	Fall Time	$R_D=20\Omega$ (Note 3,4)	---	25	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1500	---	pF
C_{oss}	Output Capacitance		---	330	---	
C_{rss}	Reverse Transfer Capacitance		---	120	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	10	A
I_{SM}	Pulsed Source Current		---	---	30	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=8A$	---	---	1.4	V

Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. $L=2\text{mH}$, $I_{AS}=18.5A$, $V_{DD}=50V$, $R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$
3. Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
4. Essentially independent of operating temperature

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

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Cmos reserves the right to improve product design ,functions and reliability without notice.