FAIRCHILD
SEMICONDUCTOR®

IRF650B / IRFS650B

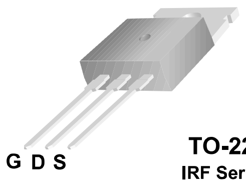
200V N-Channel MOSFET

General Description

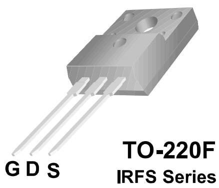
These N-Channel enhancement mode power field effect transistors are produced using Fairchild's proprietary, planar, DMOS technology.
This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency switching DC/DC converters, switch mode power supplies, DC-AC converters for uninterrupted power supply and motor control.

Features

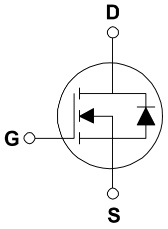
- 28A, 200V, $R_{DS(on)}$ = 0.085Ω @V_{GS} = 10 V
- Low gate charge (typical 95 nC)
- Low Crss (typical 75 pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



TO-220
IRF Series



TO-220F
IRFS Series



Absolute Maximum Ratings

T_C = 25°C unless otherwise noted

Symbol	Parameter	IRF650B	IRFS650B	Units
V_{DSS}	Drain-Source Voltage	200		V
I_D	Drain Current - Continuous (T_C = 25°C)	28	28 *	A
	- Continuous (T_C = 100°C)	17.7	17.7 *	A
I_{DM}	Drain Current - Pulsed (Note 1)	112	112	A
V_{GSS}	Gate-Source Voltage	± 30		V
E_{AS}	Single Pulsed Avalanche Energy (Note 2)	600		mJ
I_{AR}	Avalanche Current (Note 1)	28		A
E_{AR}	Repetitive Avalanche Energy (Note 1)	15.6		mJ
dv/dt	Peak Diode Recovery dv/dt (Note 3)	5.5		V/ns
P_D	Power Dissipation (T_C = 25°C)	156	50	W
	- Derate above 25°C	1.25	0.4	W/°C
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150		°C
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	300		°C

* Drain current limited by maximum junction temperature.

Thermal Characteristics

Symbol	Parameter	IRF650B	IRFS650B	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case Max.	0.8	2.51	°C/W
$R_{\theta CS}$	Thermal Resistance, Case-to-Sink Typ.	0.5	--	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient Max	62.5	62.5	°C/W

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