

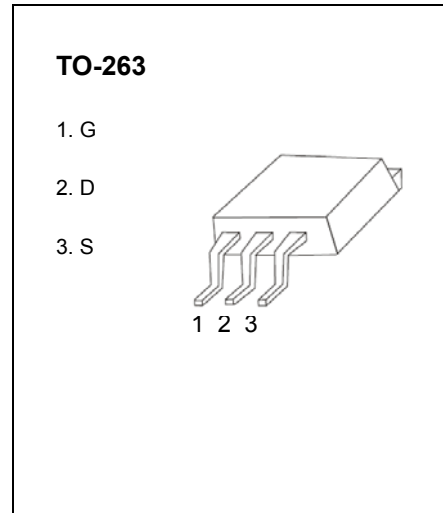
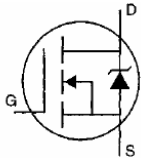


TO-263 Plastic-Encapsulate MOSFETS

IRFB830 MOSFET(N-Channel)

FEATURES

- . Dynamic dv/dt Rating
- . Repetitive Avalanche Rated
- . Fast Switching
- . Ease of Paralleling
- . Simple Drive Requirement



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
$I_D @ T_C=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	4.5	A
$I_D @ T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	2.9	A
I_{DM}	Pulsed Drain Current (note 1)	18	A
P_D	Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	$^\circ C/W$
V_{GS}	Gate-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy (note2)	280	mJ
I_{AR}	Avalanche Current (note 1)	4.5	A
E_{AR}	Repetitive Avalanche Energy (note 1)	7.4	mJ
dv/dt	Peak Diode Recovery dv/dt (note 3)	3.5	V/ns
T_J	Junction Temperature	150	$^\circ C$
T_{stg}	Storage Temperature	-55~+150	$^\circ C$

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	500			V
Gate-threshold voltage	$V_{(GS)th}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	
Gate-body leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS}=500V, V_{GS}=0V$			25	μA
Drain-source on-resistance (note 4)	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.7A$ (note 4)			1.5	Ω
Forward transconductance (note 4)	g_{fs}	$V_{DS}=50V, I_D=2.7A$ (note 4)	2.5			S
Diode forward voltage	V_{SD}	$I_S=4.5A, V_{GS}=0V$			1.6	V
Total gate charge	Q_g	$V_{DS}=400V, V_{GS}=10V, I_D=3.1A$			38	nC
Gate-source charge	Q_{gs}				5.0	
Gate-drain charge	Q_{gd}				22	
Input capacitance (note 5)	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		610		pF
Output capacitance (note 5)	C_{oss}			160		
Reverse transfer capacitance (note 5)	C_{rss}			68		
Turn-on delay time (note 4,5)	$t_{d(on)}$	$V_{DD}=250V, R_D=79\Omega,$ $I_D=3.1A, R_G=12\Omega$		8.2		nS
Rise time (note 4,5)	t_r			16		nS
Turn-off delay time (note 4,5)	$t_{d(off)}$			42		nS
Fall time (note 4,5)	t_f			16		nS

Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. $L = 24mH, I_{AS} = 4.5A, V_{DD} = 50V, R_G = 25\Omega$ Starting $T_J = 25^\circ C$.
3. $I_{SD} = 4.5A, di/dt = 300A/\mu s, V_{DD} = V_{(BR)DSS}$, Starting $T_J = 25^\circ C$.
4. Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
5. These parameters have no way to verify.