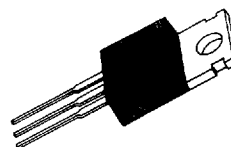


IRFZ34/35
IRFZ30/32
N-CHANNEL
POWER MOSFETS
FEATURES

- Lower $R_{DS(on)}$
- Improved inductive ruggedness
- Fast switching times
- Rugged polysilicon gate cell structure
- Lower input capacitance
- Extended safe operating area
- Improved high temperature reliability

TO-220


 IRFZ34/35
 IRFZ30/32

PRODUCT SUMMARY

Part Number	V_{DS}	$R_{DS(on)}$	I_D
IRFZ34	60V	0.05 Ω	30A
IRFZ35	60V	0.07 Ω	25A
IRFZ30	50V	0.05 Ω	30A
IRFZ32	50V	0.07 Ω	25A

ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	IRFZ34	IRFZ35	IRFZ30	IRFZ32	Unit
Drain-Source Voltage (1)	V _{DSS}	60		50		V _{dc}
Drain-Gate Voltage (R _{GS} =1.0MΩ)(1)	V _{DGR}	60		50		V _{dc}
Gate-Source Voltage	V _{GS}	±20				V _{dc}
Continuous Drain Current T _C =25°C	I _D	30	25	30	25	A _{dc}
Continuous Drain Current T _C =100°C	I _D	21	18	21	18	A _{dc}
Drain Current—Pulsed (3)	I _{DM}	120	100	120	100	A _{dc}
Gate Current—Pulsed	I _{GM}	±1.5				A _{dc}
Single Pulsed Avalanche Energy (4)	E _{AS}	19				mJ
Avalanche Current	I _{AS}	30				A
Total Power Dissipation at T _C =25°C	P _D	90				Watts
Derate above 25°C		0.60				W/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	−55 to 175°C				°C
Maximum Lead Temp. for Soldering Purposes, 1/8" from case for 5 seconds	T _L	300				°C

Notes: (1) $T_J=25^\circ C$ to $175^\circ C$

(2) Pulse test: Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

(3) Repetitive rating: Pulse with limited by max. junction temperature

(4) $L=50\mu H$, $V_{dd}=25V$, $R_G=25\Omega$, Starting $T_J=25^\circ C$

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POWER MOSFETS
ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
BV_{DSS}	Drain-Source Breakdown Voltage IRFZ34/35	60	—	—	V	$V_{GS}=0V, I_D=250\mu A$
	IRFZ30/32	50	—	—	V	
$V_{GS(th)}$	Gate Threshold Voltage	2.0	—	4.0	V	$V_{DS}=V_{GS}, I_D=250\mu A$
I_{GSS}	Gate-Source Leakage Forward	—	—	100	nA	$V_{GS}=+20V$
I_{GSS}	Gate-Source Leakage Reverse	—	—	100	nA	$V_{GS}=-20V$
I_{DSS}	Zero Gate Voltage Drain Current	—	—	250	μA	$V_{DS}=\text{Max. Rating}, V_{GS}=0V$
		—	—	1000		$V_{DS}=0.8 \times \text{Max. Rating}, V_{GS}=0V, T_C=150^\circ\text{C}$
$I_{D(on)}$	On-State Drain-Source Current (2) IRFZ34/30	30	—	—	A	$V_{DS} \geq 2.1V$
	IRFZ35/32	25	—	—	A	$V_{GS}=10V$
$R_{DS(on)}$	Static Drain-Source IRFZ34/30	—	—	0.05	Ω	$V_{GS}=10V, I_D=18A$
	On-State Resistance IRFZ35/32	—	—	0.07	Ω	
g_{fs}	Forward Transconductance (2)	9.3	—	—	μ	$V_{DS} \geq 50V, I_D=18A$
C_{iss}	Input Capacitance	—	1300	—	pF	$V_{GS}=0V$
C_{oss}	Output Capacitance	—	650	—	pF	$V_{DS}=25V$
C_{rss}	Reverse Transfer Capacitance	—	100	—	pF	$f=1.0\text{MHz}$
$t_{d(on)}$	Turn-On Delay Time	—	—	21	ns	$V_{DD}=0.5 BV_{DSS}, I_D=30A, Z_\theta=12\Omega$ (MOSFET switching times are essentially independent of operating temperature)
t_r	Rise Time	—	—	110	ns	
$t_{d(off)}$	Turn-Off Delay Time	—	—	53	ns	
t_f	Fall Time	—	—	80	ns	
Q_g	Total Gate Charge (Gate-Source Plus Gate-Drain)	—	—	47	nC	$V_{GS}=10V, I_D=30A, V_{DS}=0.8 \times \text{Max. Rating}$ (Gate charge is essentially independent of operating temperature.)
Q_{gs}	Gate-Source Charge	—	—	10	nC	
Q_{gd}	Gate-Drain ("Miller") Charge	—	—	22	nC	

THERMAL RESISTANCE

R_{thJC}	Junction-to-Case	MAX	1.7	K/W	
R_{thCS}	Case-to-Sink	TYP	0.5	K/W	Mounting surface flat
R_{thJA}	Junction-to-Ambient	MAX	80	K/W	Free Air Operation

Notes: (1) $T_J=25^\circ\text{C}$ to 175°C

 (2) Pulse test: Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

(3) Repetitive rating: Pulse width limited by max. junction temperature

IRFZ34/35
IRFZ30/32
N-CHANNEL
POWER MOSFETS
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

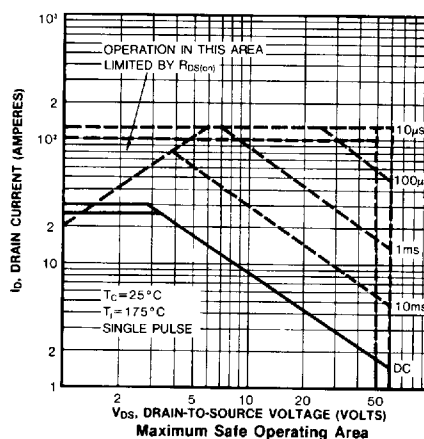
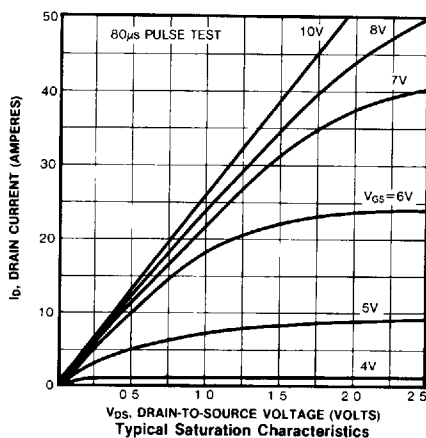
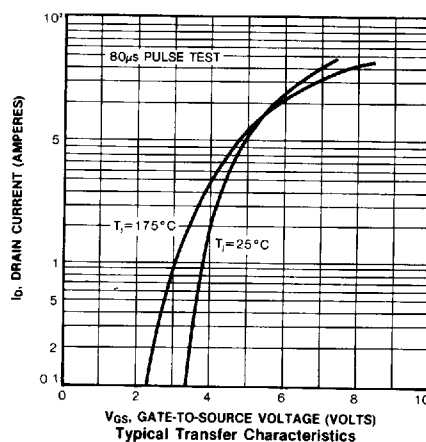
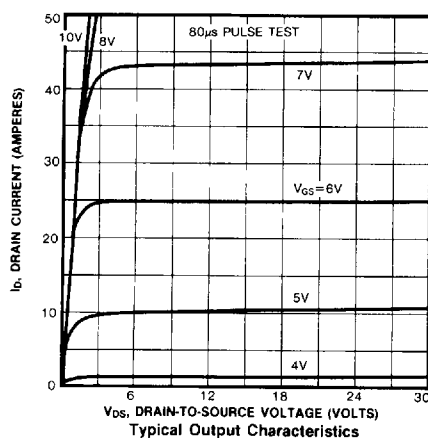
Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
I_S	Continuous Source Current (Body Diode)	—	—	30	A	Modified MOSFET integral reverse P-N junction rectifier
I_{SM}	Pulse-Source Current (3)	—	—	120	A	
		—	—	100	A	
V_{SD}	Diode Forward Voltage (2)	—	—	1.6	V	$T_C = 25^\circ\text{C}$, $I_S = 30\text{A}$, $V_{GS} = 0\text{V}$
t_{rr}	Reverse Recovery Time	—	—	220	ns	$T_J = 25^\circ\text{C}$, $I_F = 30\text{A}$, $dI_F/dt = 100\text{A}/\mu\text{S}$

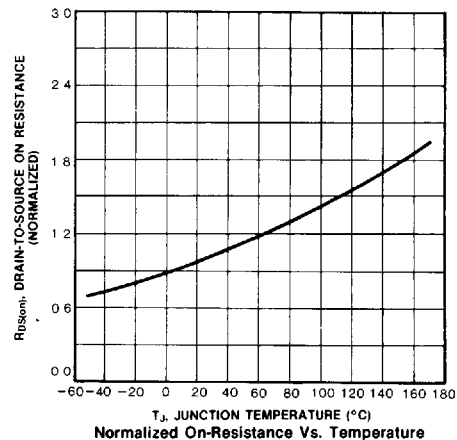
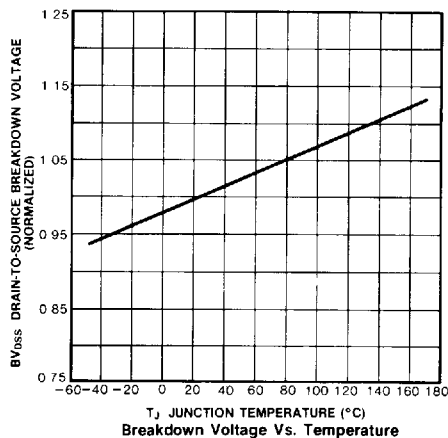
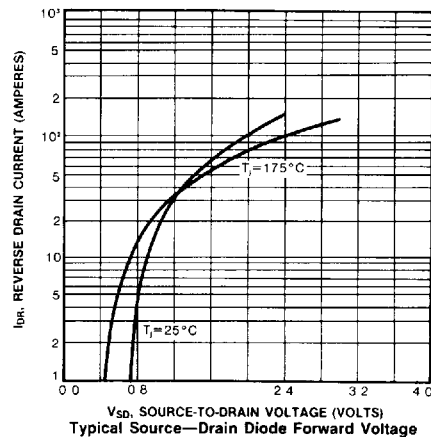
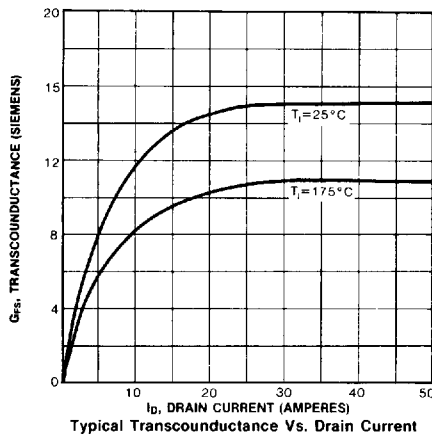
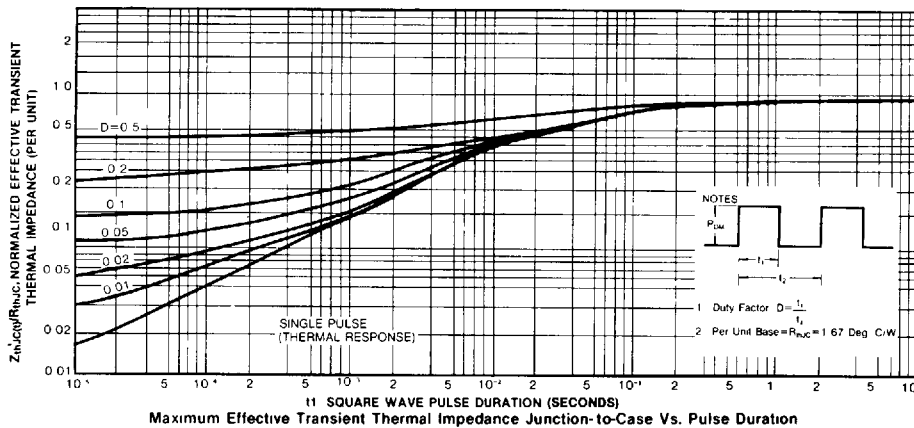


Notes: (1) $T_J = 25^\circ\text{C}$ to 175°C

(2) Pulse test. Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 3\%$

(3) Repetitive rating: Pulse with limited by max junction temperature



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