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RFH35N08, RFH35N10

Power MOS Field-Effect Transistors

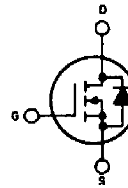
N-Channel Enhancement-Mode Power Field-Effect Transistors

35 A, 80 V - 100 V
$r_{DS(on)} = 0.055\ \Omega$

Features:

- *SOA is power-dissipation limited*
- *Nanosecond switching speeds*
- *Linear transfer characteristics*
- *High input impedance*
- *Majority carrier device*
- *High-current, low-inductance package*

TERMINAL DIAGRAM



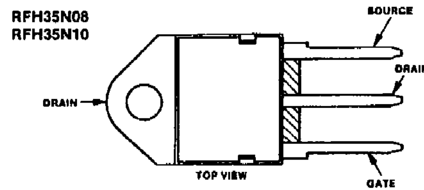
N-CHANNEL ENHANCEMENT MODE

The RFH35N08 and RFH35N10* are n-channel enhancement-mode silicon-gate power field-effect transistors designed for applications such as switching regulators, switching converters, motor drivers, relay drivers, and drivers for high-power bipolar switching transistors requiring high speed and low gate-drive power. These types can be operated directly from integrated circuits.

The RFH-types are supplied in the JEDEC TO-218AC plastic package.

TERMINAL DESIGNATIONS

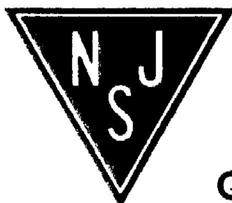
RFH35N08
RFH35N10



JEDEC TO-218AC

MAXIMUM RATINGS, *Absolute-Maximum Values* (T_C = 25° C):

	Symbol	RFH35N08	RFH35N10	Unit
DRAIN-SOURCE VOLTAGE	V_{DSS}	80	100	V
DRAIN-GATE VOLTAGE, R_{GS} = 1 MΩ	V_{DGR}	80	100	V
GATE-SOURCE VOLTAGE	V_{GS}	±20		V
DRAIN CURRENT, RMS Continuous	I_D	35		A
Pulsed	I_{DM}	100		A
POWER DISSIPATION @ T_C = 25° C	P_T	150		W
Derate above T_C = 25° C		1.2		W/° C
OPERATING AND STORAGE TEMPERATURE	T_J, T_{stg}	-55 to +150		° C



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS, at Case Temperature (T_C) = 25°C unless otherwise specified.

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	LIMITS				UNITS
			RFH35N08		RFH35N10		
			Min.	Max.	Min.	Max.	
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 1 mA V_{GS} = 0	80	—	100	—	V
Gate Threshold Voltage	$V_{GS}(th)$	V_{GS} = V_{DS} I_D = 1 mA	2	4	2	4	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 65 V V_{DS} = 80 V	— —	1 —	— —	— 1	μA
		T_C = 125°C V_{DS} = 65 V V_{DS} = 80 V	— —	50 —	— —	— 50	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ± 20 V V_{DS} = 0	—	100	—	100	nA
Drain-Source On Voltage	$V_{DS}(on)$[a]	I_D = 17.5 A V_{GS} = 10 V	—	0.963	—	0.963	V
		I_D = 35 A V_{GS} = 10 V	—	3.0	—	3.0	V
Static Drain-Source On Resistance	$r_{DS}(on)$[a]	I_D = 17.5 A V_{GS} = 10 V	—	0.055	—	0.055	Ω
Forward Transconductance	g_{fs}[a]	V_{DS} = 10 V I_D = 17.5 A	10	—	10	—	mho
Input Capacitance	C_{iss}	V_{DS} = 25 V	—	3000	—	3000	pF
Output Capacitance	C_{oss}	V_{GS} = 0 V	—	1500	—	1500	pF
Reverse Transfer Capacitance	C_{rss}	f = 1 MHz	—	600	—	600	pF
Turn-On Delay Time	$t_d(on)$	V_{DD} = 50 V	45(typ)	100	45(typ)	100	ns
Rise Time	t_r	I_D = 17.5 A	225(typ)	450	225(typ)	450	ns
Turn-Off Delay Time	$t_d(off)$	R_{gen}=R_{gs}=50Ω	240(typ)	450	240(typ)	450	ns
Fall Time	t_f	V_{GS} = 10 V	165(typ)	350	165(typ)	350	ns
Thermal Resistance Junction-to-Case	$R\theta_{JC}$	RFH35N08, RFH35N10 Series	—	0.83	—	0.83	°C/W

[a]Pulsed: Pulse duration = 300 μs max., duty cycle = 2%.

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

CHARACTERISTIC		TEST CONDITIONS	LIMITS				UNITS
			RFH35N08		RFH35N10		
			Min.	Max.	Min.	Max.	
Diode Forward Voltage	V_{SD}*	I_{SD} = 17.5A	—	1.4	—	1.4	V
Reverse Recovery Time	t_{rr}	I_F = 4A, d_{IF}/d_t = 100 A/μs	200 (typ.)		200 (typ.)		ns

* Pulsed: Pulse duration = 300 μs max., duty cycle = 2%.