

RFK35N08, RFK35N10

Power MOS Field-Effect Transistors

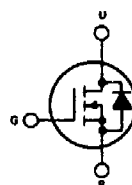
**N-Channel Enhancement-Mode
Power Field-Effect Transistors**

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

N-CHANNEL ENHANCEMENT MODE

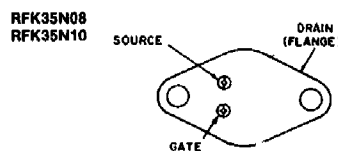


TERMINAL DIAGRAM

The RFK35N08 and RFK35N10* 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 RFK-types are supplied in the JEDEC TO-204AE steel package.

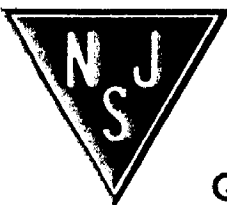
TERMINAL DESIGNATIONS



JEDEC TO-204AE

MAXIMUM RATINGS, Absolute-Maximum Values ($T_C=25^\circ\text{C}$):

	RFK35N08	RFK35N10	
DRAIN-SOURCE VOLTAGE	80	100	V
DRAIN-GATE VOLTAGE, $R_{DS}=1\text{ M}\Omega$	80	100	V
GATE-SOURCE VOLTAGE		± 20	V
DRAIN CURRENT, RMS Continuous		35	A
Pulsed		100	A
POWER DISSIPATION @ $T_C=25^\circ\text{C}$		150	W
Derate above $T_C=25^\circ\text{C}$		1.2	W/°C
OPERATING AND STORAGE TEMPERATURE	-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.

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RFK35N08, RFK35N10

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

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	LIMITS				UNITS
			RFK35N08		RFK35N10		
			MIN.	MAX.	MIN.	MAX.	
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=1\text{ mA}$ $V_{GS}=0$	80	—	100	—	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=1\text{ mA}$	2	4	2	4	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=65\text{ V}$ $V_{GS}=80\text{ V}$	—	1	—	—	μA
		$T_C=125^\circ\text{C}$ $V_{DS}=65\text{ V}$ $V_{GS}=80\text{ V}$	—	50	—	—	
			—	—	—	1	
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{ V}$ $V_{DS}=0$	—	100	—	100	nA
Drain-Source On Voltage	$V_{DS(on)}^*$	$I_D=17.5\text{ A}$ $V_{GS}=10\text{ V}$	—	0.9625	—	0.9625	V
		$I_D=35\text{ A}$ $V_{GS}=10\text{ V}$	—	3.5	—	3.5	
Static Drain-Source On Resistance	$r_{DS(on)}^*$	$I_D=17.5\text{ A}$ $V_{GS}=10\text{ V}$	—	0.055	—	0.055	Ω
Forward Transconductance	g_m^*	$V_{DS}=10\text{ V}$ $I_D=17.5\text{ A}$	10	—	10	—	mho
Input Capacitance	C_{iss}	$V_{DS}=25\text{ V}$	—	3000	—	3000	pF
Output Capacitance	C_{oss}	$V_{DS}=0\text{ V}$	—	1500	—	1500	
Reverse Transfer Capacitance	C_{rss}	$f=1\text{ MHz}$	—	600	—	600	
Turn-On Delay Time	$t_d(on)$	$V_{DS}=50\text{ V}$	45(typ)	100	45(typ)	100	ns
Rise Time	t_r	$I_D=17.5\text{ A}$	225(typ)	450	225(typ)	450	
Turn-Off Delay Time	$t_d(off)$	$R_{\theta JN}=R_{\theta JC}=50\text{ }^\circ\text{C/W}$	240(typ)	450	240(typ)	450	
Fall Time	t_f	$V_{GS}=10\text{ V}$	165(typ)	350	165(typ)	350	
Thermal Resistance Junction-to-Case	$R\theta_{JC}$	RFK35N08, RFK35N10 Series	—	0.83	—	0.83	$^\circ\text{C/W}$

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	LIMITS				UNITS
			RFK35N08		RFK35N10		
			MIN.	MAX.	MIN.	MAX.	
Diode Forward Voltage	V_{SD}^*	$I_{SD}=17.5\text{ A}$	—	1.4	—	1.4	V
Reverse Recovery Time	t_{rr}	$I_F=4\text{ A}$ $d_I/d_t=100\text{ A}/\mu s$	200(typ)		200(typ)		ns

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