

# RFL1N08, RFL1N10

1A, 80V and 100V, 1.200 Ohm,  
N-Channel, Power MOSFETs

## Features

- 1A, 80V and 100V
- $r_{DS(ON)} = 1.200\Omega$

## Ordering Information

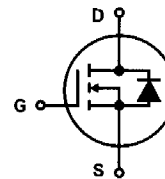
PART NUMBER	PACKAGE	BRAND
RFL1N08	TO-205AF	RFL1N08
RFL1N10	TO-205AF	RFL1N10

NOTE: When ordering, use the entire part number.

## Description

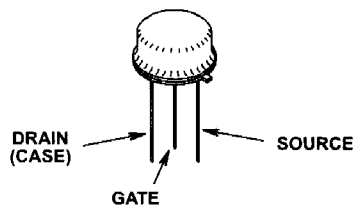
These are N-channel enhancement mode silicon-gate power field-effect transistors designed for applications such as switching regulators, switching converters, motor drivers, relay drivers and drivers for high-power bipolar switching transistors requiring high speed and low gate-drive power. These types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

## Symbol

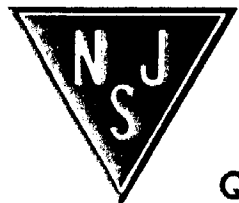


## Packaging

JEDEC TO-204AA



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**Absolute Maximum Ratings**  $T_C = 25^\circ\text{C}$ , Unless Otherwise Specified

	RFL1N08	RFL1N10	UNITS
Drain to Source Voltage (Note 1) . . . . .	80	100	V
Drain to Gate Voltage ( $R_{GS} = 20\text{k}\Omega$ ) (Note 1) . . . . .	80	100	V
Continuous Drain Current . . . . .	1	1	A
Pulsed Drain Current (Note 3) . . . . .	5	5	A
Gate to Source Voltage . . . . .	$\pm 20$	$\pm 20$	V
Maximum Power Dissipation . . . . .	8.33	8.33	W
Linear Derating Factor . . . . .	0.0667	0.0667	W/ $^\circ\text{C}$
Operating and Storage Temperature . . . . .	-55 to 150	-55 to 150	$^\circ\text{C}$
Maximum Temperature for Soldering Leads at 0.063in (1.6mm) from Case for 10s . . . . .	260	260	$^\circ\text{C}$

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

NOTE:

1.  $T_J = 25^\circ\text{C}$  to  $125^\circ\text{C}$ .

**Electrical Specifications**  $T_C = 25^\circ\text{C}$ , Unless Otherwise Specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Drain to Source Breakdown Voltage RFL1N08 RFL1N10	$BV_{DSS}$	$I_D = 250\mu\text{A}$ , $V_{GS} = 0\text{V}$	80	-	-	V
			100	-	-	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$ , (Figure 8)	2	-	4	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS} = \text{Rated } BV_{DSS}$ , $V_{GS} = 0\text{V}$	-	-	1	$\mu\text{A}$
		$V_{DS} = 0.8 \times \text{Rated } BV_{DSS}$ , $V_{GS} = 0\text{V}$ , $T_J = 125^\circ\text{C}$	-	-	25	$\mu\text{A}$
On-State Drain Current (Note 2)	$I_{D(ON)}$	$V_{DS} > I_{D(ON)} \times r_{DS(ON)MAX}$ , $V_{GS} = 10\text{V}$	1	-	-	A
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20\text{V}$	-	-	$\pm 100$	nA
Drain to Source On Resistance	$r_{DS(ON)}$	$I_D = 5.6\text{A}$ , $V_{GS} = 10\text{V}$ , (Figures 6, 7)			1.200	$\Omega$
Turn-On Delay Time	$t_{d(ON)}$	$V_{DD} = 50\text{V}$ , $V_{GS} = 10\text{V}$ , $I_D = 1\text{A}$ , $R_G = 50\Omega$ , $R_L = 50\Omega$ (Figures 10, 11, 12) MOSFET Switching Times are Essentially Independent of Operating Temperature	-	17	25	ns
Rise Time	$t_r$		-	30	45	ns
Turn-Off Delay Time	$t_{d(OFF)}$		-	30	45	ns
Fall Time	$t_f$		-	30	50	ns
Input Capacitance	$C_{ISS}$	$V_{DS} = 25\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$ (Figure 9)	-	-	200	pF
Output Capacitance	$C_{OSS}$		-	-	80	pF
Reverse Transfer Capacitance	$C_{RSS}$		-	-	25	pF
Thermal Resistance Junction to Case	$R_{\theta JC}$		-	-		$^\circ\text{C/W}$

**Source to Drain Diode Specifications**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Source to Drain Diode Voltage (Note 2)	$V_{SD}$	$T_J = 25^\circ\text{C}$ , $I_{SD} = 1\text{A}$ , $V_{GS} = 0\text{V}$	-	-	1.4	V
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ\text{C}$ , $I_{SD} = 1\text{A}$ , $dI_{SD}/dt = 100\text{A}/\mu\text{s}$	-	100	-	ns

NOTES:

2. Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .
3. Repetitive rating: pulse width limited by maximum junction temperature.