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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

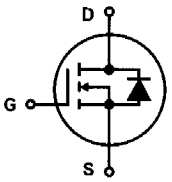
PART NUMBER	PACKAGE	BRAND
RFL1N08	TO-205AF	RFL1N08
RFL1N10	TO-205AF	RFL1N10

NOTE: When ordering, use the entire part number.

Description

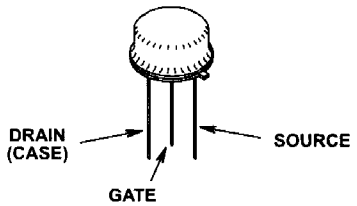
These are N-channel enhancement mode silicon-gate power field-effect transistors designed for applications such as switching regulators, switching converters, motor drivers, relay drivers and drivers for high-power bipolar switching transistors requiring high speed and low gate-drive power. These types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

Symbol



Packaging

JEDEC TO-204AA



Absolute Maximum Ratings $T_C = 25^oC$, Unless Otherwise Specified

		RFL1N08	RFL1N10	UNITS
Drain to Source Voltage (Note 1)	V_{DS}	80	100	V
Drain to Gate Voltage (R_{GS} = 20kΩ) (Note 1)	V_{DGR}	80	100	V
Continuous Drain Current	I_D	1	1	A
Pulsed Drain Current (Note 3	I_{DM}	5	5	A
Gate to Source Voltage	V_{GS}	±20	±20	V
Maximum Power Dissipation	P_D	8.33	8.33	W
Linear Derating Factor		0.0667	0.0667	W/°C
Operating and Storage Temperature	T_J, T_{STG}	-55 to 150	-55 to 150	°C
Maximum Temperature for Soldering Leads at 0.063in (1.6mm) from Case for 10s	T_L	260	260	°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. $T_J = 25^oC$ to 125^oC.

Electrical Specifications $T_C = 25^oC$, Unless Otherwise Specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Drain to Source Breakdown Voltage RFL1N08	BV_{DSS}	I_D = 250μA, V_{GS} = 0V	80	-	-	V
RFL1N10			100	-	-	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}$, I_D = 250μA, (Figure 8)	2	-	4	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = Rated BV_{DSS}, V_{GS} = 0V	-	-	1	μA
		V_{DS} = 0.8 x Rated BV_{DSS}, V_{GS} = 0V, $T_J = 125^oC$	-	-	25	μA
On-State Drain Current (Note 2)	$I_{D(ON)}$	$V_{DS} > I_{D(ON)} \times r_{DS(ON)MAX}$, V_{GS} = 10V	1	-	-	A
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±20V	-	-	±100	nA
Drain to Source On Resistance	$r_{DS(ON)}$	I_D = 5.6A, V_{GS} = 10V, (Figures 6, 7)			1.200	Ω
Turn-On Delay Time	$t_{d(ON)}$	V_{DD} = 50V, V_{GS} = 10V, $I_D \simeq$ 1A, R_G = 50Ω, R_L = 50Ω (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} = 25V, V_{GS} = 0V, f = 1MHz (Figure 9)	-	-	200	pF
Output Capacitance	C_{OSS}		-	-	80	pF
Reverse Transfer Capacitance	C_{RSS}		-	-	25	pF
Thermal Resistance Junction to Case	$R_{\theta JC}$		-	-		°C/W

Source to Drain Diode Specifications

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

NOTES:

2. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%.
3. Repetitive rating: pulse width limited by maximum junction temperature.