

10V Drive Nch MOS FET

RDX030N60

●Structure

Silicon N-channel MOS FET

●Features

- 1) Low on-resistance.
- 2) Low input capacitance.
- 3) Excellent resistance to damage from static electricity.

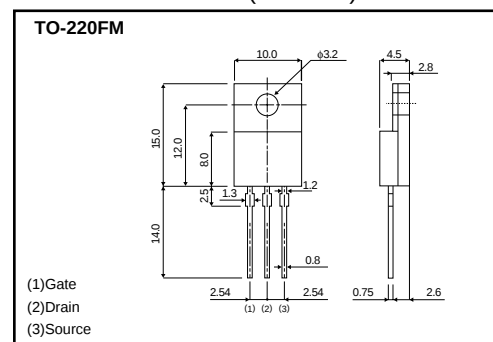
●Applications

Switching

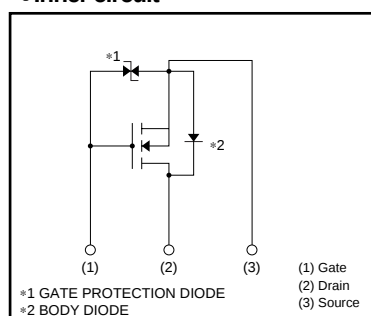
●Package specifications

Type	Package	Bulk
	Code	—
	Basic ordering unit (pieces)	500
RDX030N60		○

●External dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DS}	600	V
Gate-source voltage		V_{GS}	± 30	V
Drain current	Continuous	I_D *1	± 3	A
	Pulsed	I_{DP} *2	± 12	A
Source current (Body diode)	Continuous	I_S	3	A
	Pulsed	I_{SP} *2	12	A
Avalanche current		I_{AS} *3	3	A
Avalanche energy		E_{AS} *4	28	mJ
Total power dissipation (Tc=25°C)		P_D	30	W
Channel temperature		Tch	150	°C
Range of storage temperature		Tstg	-55 to +150	°C

*1 Limited only by maximum temperature allowed *2 $P_w \leq 10\text{W}$, Duty cycle $\leq 1\%$
 *3 $L \leq 5.4\text{mH}$ $V_{DS}=90\text{V}$ $R_g=25\Omega$ *4 $L \leq 5.4\text{mH}$ $V_{DS}=90\text{V}$ $R_g=25\Omega$ starting Tch=25°C

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to case	$R_{th(ch-c)}$	4.17	°C/W

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25V, V_{DS} = 0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D = 1mA, V_{GS} = 0V$
Zero gate voltage drain current	I_{DSS}	—	—	25	μA	$V_{DS} = 600V, V_{GS} = 0V$
Gate threshold voltage	$V_{GS(th)}$	2.0	—	4.0	V	$V_{DS} = 10V, I_D = 1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	—	2.7	3.6	Ω	$I_D = 1.5A, V_{GS} = 10V$
Forward transfer admittance	$ Y_{fs} ^*$	1.0	1.8	—	S	$V_{DS} = 10V, I_D = 1.5A$
Input capacitance	C_{iss}	—	320	—	pF	$V_{DS} = 25V$
Output capacitance	C_{oss}	—	40	—	pF	$V_{GS} = 0V$
Reverse transfer capacitance	C_{rss}	—	8	—	pF	$f = 1MHz$
Turn-on delay time	$t_{d(on)}^*$	—	12	—	ns	$V_{DD} \doteq 150V$
Rise time	t_r^*	—	16	—	ns	$I_D = 1.5A$
Turn-off delay time	$t_{d(off)}^*$	—	24	—	ns	$V_{GS} = 10V$
Fall time	t_f^*	—	40	—	ns	$R_L = 100\Omega$
Total gate charge	Q_g^*	—	10	—	nC	$V_{DD} \doteq 300V, V_{GS} = 10V$
Gate-source charge	Q_{gs}^*	—	3	—	nC	$I_D = 3A$
Gate-drain charge	Q_{gd}^*	—	4.5	—	nC	$R_L = 100\Omega, R_G = 10\Omega$

*Pulsed

●Body diode characteristics (Source-drain) (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD}^*	—	—	1.5	V	$I_S = 3A, V_{GS} = 0V$
Reverse recovery time	t_{rr}^*	—	380	—	ns	$I_{DR} = 3A, V_{GS} = 0V$
Reverse recovery charge	Q_{rr}^*	—	4.2	—	μC	$di/dt = 100A / \mu s$

* Pulsed

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