10V Drive Nch MOSFET

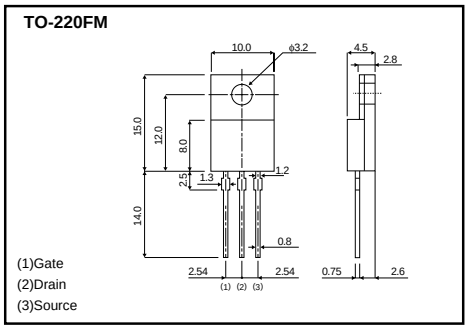
RDX030N60

●Structure
Silicon N-channel MOSFET

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

●Applications
Switching

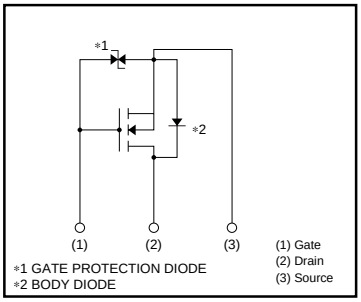
●Dimensions (Unit : mm)



●Package specifications

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

●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	600	V
Gate-source voltage		V_{GSS}	±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 Pw ≤10μs, Duty cycle≤1%
*3 L≒5.4mH V_{DD}=90V Rg=25Ω *4 L≒5.4mH V_{DD}=90V Rg=25Ω starting Tch=25°C

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to case	Rth(ch-c)	4.17	°C/W

●**Electrical characteristics** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	–	–	±10	μA	V_{GS}= ±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}≒ 150V I_D= 1.5A V_{GS}= 10V R_L= 100Ω R_G=10Ω
Rise time	t_r *	–	16	–	ns	
Turn-off delay time	$t_{d\ (off)}$ *	–	24	–	ns	
Fall time	t_f *	–	40	–	ns	
Total gate charge	Q_g *	–	10	–	nC	V_{DD}≒ 300V, V_{GS}= 10V
Gate-source charge	Q_{gs} *	–	3	–	nC	I_D= 3A
Gate-drain charge	Q_{gd} *	–	4.5	–	nC	R_L= 100Ω, R_G= 10Ω

*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 / μs

* Pulsed

●**Electrical characteristics curves**

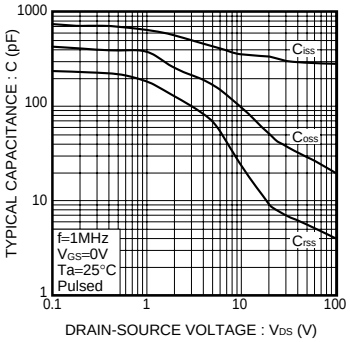


Fig.1 Typical Capacitance vs. Drain-Source Voltage

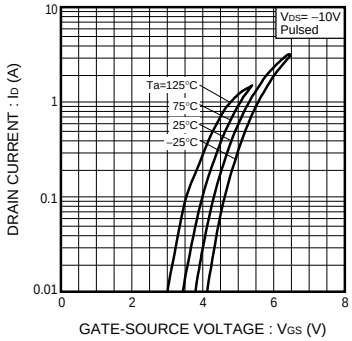


Fig.2 Typical Transfer Characteristics

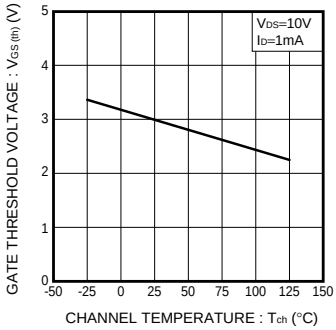


Fig.3 Gate Threshold Voltage vs. Channel Temperature

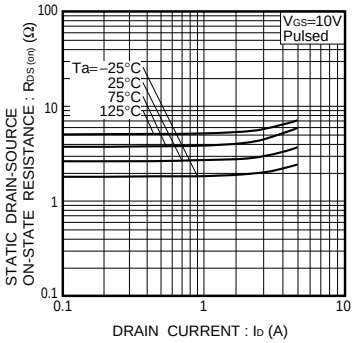


Fig.4 Static Drain-Source On-State Resistance vs. Drain-Current

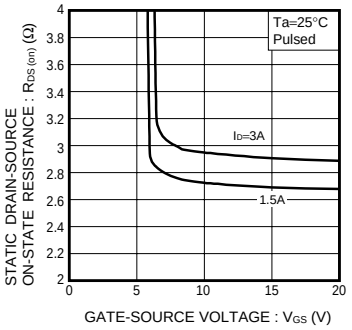


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

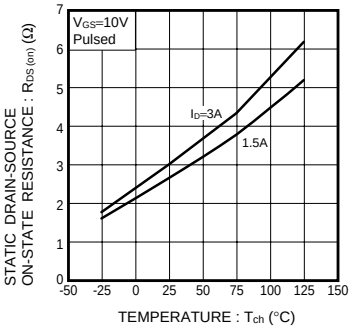


Fig.6 Static Drain-Source On-State Resistance vs. Channel Temperature

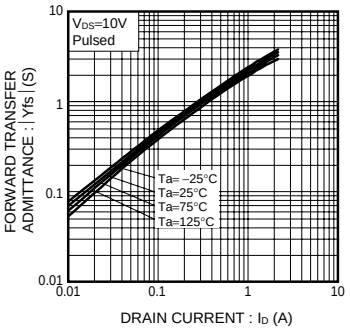


Fig.7 Forward Transfer Admittance vs. Drain Current

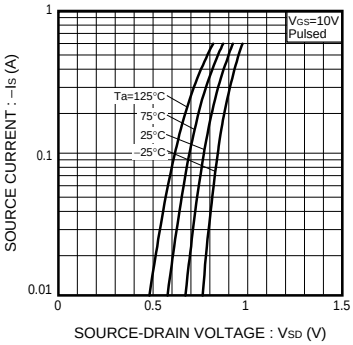


Fig.8 Source Current vs. Source-Drain Voltage

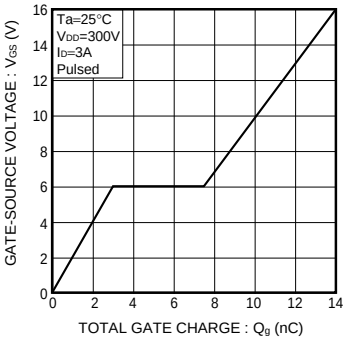


Fig.9 Dynamic Input Characteristics

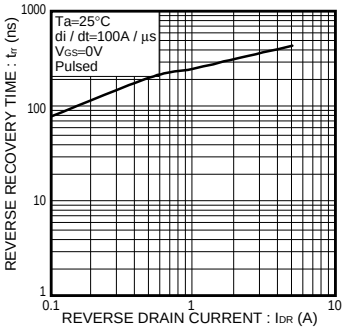


Fig.10 Reverse Recovery Time vs. Reverse Drain Current

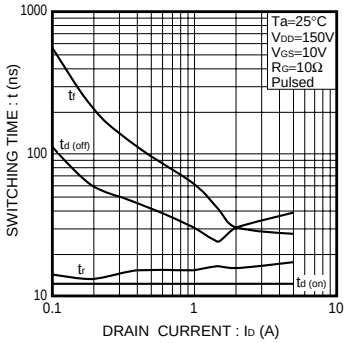


Fig.11 Switching Characteristcs

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