

Transistors

2.5V Drive Nch MOS FET

RTQ020N03

●Structure

Silicon N-channel MOS FET

●Features

- 1) Low On-resistance.
- 2) Space saving, small surface mount package (TSMT6).
- 3) Low voltage drive (2.5V drive).

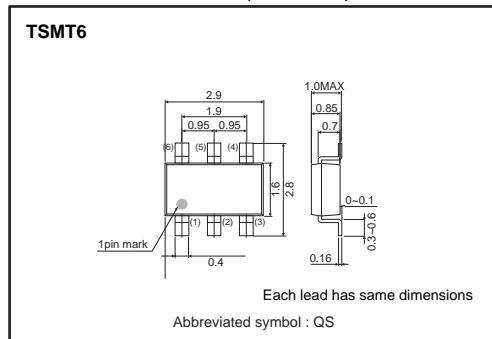
●Applications

Switching

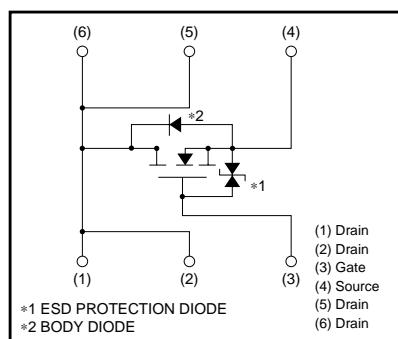
●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
RTQ020N03		○

●External dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V _{DSS}	30	V
Gate-source voltage	V _{GSS}	12	V
Drain current	I _D	±2.0	A
	I _{DP} *1	±8.0	A
Source current (Body diode)	I _S	1.0	A
	I _{SP} *1	8.0	A
Total power dissipation	P _D *2	1.25	W
Channel temperature	T _{ch}	150	°C
Range of storage temperature	T _{stg}	-55 to +150	°C

*1 P_w≤10μs, Duty cycle≤1%

*2 Mounted on a ceramic board

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	R _{th(ch-a)} *	100	°C/W

* Mounted on a ceramic board

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I _{GSS}	—	—	10	μA	V _{GS} =12V, V _{DS} =0V
Drain-source breakdown voltage	V _{(BR) DSS}	30	—	—	V	I _D = 1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	—	—	1	μA	V _{DS} = 30V, V _{GS} =0V
Gate threshold voltage	V _{GS (th)}	0.5	—	1.5	V	V _{DS} = 10V, I _D = 1mA
Static drain-source on-state resistance	R _{DS (on)*}	—	89	125	mΩ	I _D = 2A, V _{GS} = 4.5V
		—	94	132	mΩ	I _D = 2A, V _{GS} = 4V
		—	138	194	mΩ	I _D = 2A, V _{GS} = 2.5V
Forward transfer admittance	Y _{fs} *	2.0	—	—	S	V _{DS} = 10V, I _D = 2A
Input capacitance	C _{iss}	—	135	—	pF	V _{DS} = 10V
Output capacitance	C _{oss}	—	35	—	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	—	25	—	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	—	8	—	ns	V _{DD} = 15V I _D = 1A
Rise time	t _r *	—	11	—	ns	V _{GS} = 4.5V
Turn-off delay time	t _{d (off)} *	—	17	—	ns	R _L =15Ω R _G =10Ω
Fall time	t _f *	—	9	—	ns	
Total gate charge	Q _g *	—	2.4	3.3	nC	V _{DD} = 15V
Gate-source charge	Q _{gs} *	—	0.5	—	nC	V _{GS} = 4.5V
Gate-drain charge	Q _{gd} *	—	0.7	—	nC	I _D = 2A

*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V _{SD} *	—	—	1.2	V	I _S = 4A, V _{GS} =0V

*Pulsed

Appendix

Notes

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