

## Transistors

## 4V Drive Nch MOS FET

## RSQ045N03

## ●Structure

Silicon N-channel MOS FET

## ●Features

- 1) Low On-resistance.
- 2) Space saving, small surface mount package (TSMT6).
- 3) Low voltage drive (4V drive).

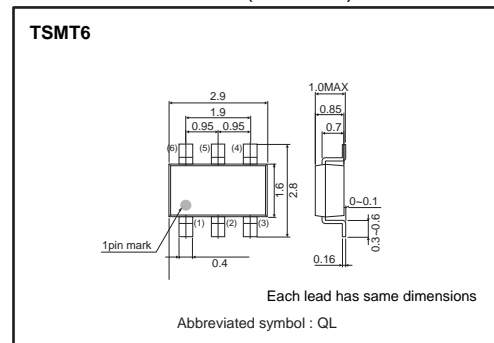
## ●Applications

Switching

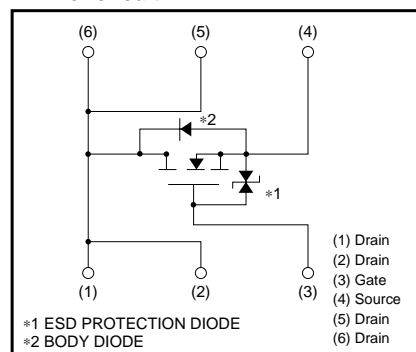
## ●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
RSQ045N03		○

## ●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	$V_{GSS}$	20	V	
Drain current	Continuous	$I_D$	±4.5	A
	Pulsed	$I_{DP}$ *1	±18	A
Source current (Body diode)	Continuous	$I_S$	1.0	A
	Pulsed	$I_{SP}$ *1	18	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  $P_w \leq 10 \mu s$ , Duty cycle  $\leq 1\%$ 

\*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	$\mu A$	$V_{GS}=20V, V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR) DSS}$	30	–	–	V	$I_D=1mA, V_{GS}=0V$
Zero gate voltage drain current	$I_{DSS}$	–	–	1	$\mu A$	$V_{DS}=30V, V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	1.0	–	2.5	V	$V_{DS}=10V, I_D=1mA$
Static drain-source on-state resistance	$R_{DS(on)}$ *	–	27	38	$m\Omega$	$I_D=4.5A, V_{GS}=10V$
		–	36	51	$m\Omega$	$I_D=4.5A, V_{GS}=4.5V$
		–	40	56	$m\Omega$	$I_D=4.5A, V_{GS}=4V$
Forward transfer admittance	$ Y_{fs} $ *	3.5	–	–	S	$V_{DS}=10V, I_D=4.5A$
Input capacitance	$C_{iss}$	–	520	–	pF	$V_{DS}=10V$
Output capacitance	$C_{oss}$	–	150	–	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{rss}$	–	95	–	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	–	12	–	ns	$V_{DD} \doteq 15V$
Rise time	$t_r$ *	–	19	–	ns	$I_D=2.25A$
Turn-off delay time	$t_{d(off)}$ *	–	41	–	ns	$V_{GS}=10V$
Fall time	$t_f$ *	–	14	–	ns	$R_L=6.67\Omega$
Total gate charge	$Q_g$ *	–	6.8	9.5	nC	$V_{DD} \doteq 15V, V_{GS}=5V$
Gate-source charge	$Q_{gs}$ *	–	1.6	–	nC	$I_D=4.5A$
Gate-drain charge	$Q_{gd}$ *	–	2.3	–	nC	$R_L=3.33\Omega, R_G=10\Omega$

\*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}$	–	–	1.2	V	$I_S=1.0A, V_{GS}=0V$

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