

● **Structure**

TY P-channel MOSFET

● **Features**

- 1) Low On-resistance.
- 2) Small high power package.
- 3) Low voltage drive.(1.5V)

● **Application**

Switching

● **Packaging specifications**

Type	Package	Taping
	Code	TCR
	Basic ordering unit (pieces)	3000
RAL045P01		○

● **Absolute maximum ratings (Ta = 25°C)**

Parameter	Symbol	Limits	Unit
Drain-source voltage	$V_{DSS}$	-12	V
Gate-source voltage	$V_{GSS}$	0 to -8	V
Drain current	Continuous	$I_D$	±4.5 A
	Pulsed	$I_{DP}$ *1	±18 A
Source current (Body Diode)	Continuous	$I_S$	-0.8 A
	Pulsed	$I_{SP}$ *1	-18 A
Power dissipation	$P_D$ *2	1	W
Channel temperature	Tch	150	°C
Range of storage temperature	Tstg	-55 to +150	°C

\*1  $P_w \leq 10 \mu s$ , Duty cycle  $\leq 1\%$

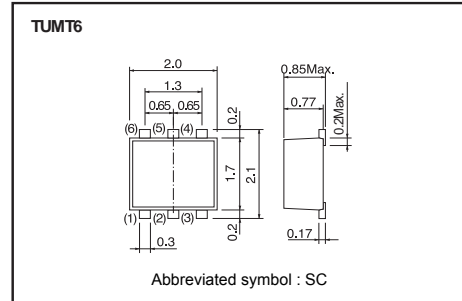
\*2 Mounted on a ceramic board.

● **Thermal resistance**

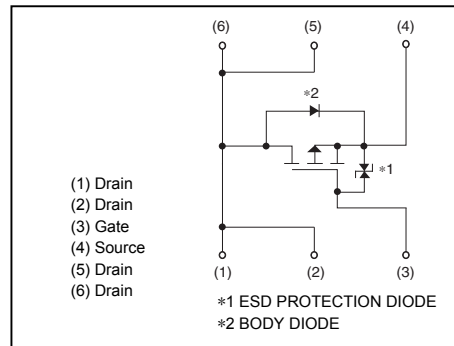
Parameter	Symbol	Limits	Unit
Channel to Ambient	$R_{th}(ch-a)^*$	125	°C / W

\*Mounted on a ceramic board.

● **Dimensions (Unit : mm)**



● **Inner circuit**



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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	$I_{GSS}$	-	-	-10	$\mu A$	$V_{GS}=-8V, V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	-12	-	-	V	$I_D=-1mA, V_{GS}=0V$
Zero gate voltage drain current	$I_{DSS}$	-	-	-10	$\mu A$	$V_{DS}=-12V, V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	-0.3	-	-1.0	V	$V_{DS}=-6V, I_D=-1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	-	22	30	m $\Omega$	$I_D=-4.5A, V_{GS}=-4.5V$
		-	28	39		$I_D=-2.2A, V_{GS}=-2.5V$
		-	38	57		$I_D=-2.2A, V_{GS}=-1.8V$
		-	50	100		$I_D=-0.9A, V_{GS}=-1.5V$
Forward transfer admittance	$ Y_{fs} ^*$	5.5	-	-	S	$I_D=-4.5A, V_{DS}=-6V$
Input capacitance	$C_{ISS}$	-	4200	-	pF	$V_{DS}=-6V$
Output capacitance	$C_{OSS}$	-	350	-	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{RSS}$	-	330	-	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	-	16	-	ns	$I_D=-2.2A, V_{DD}=-6V$
Rise time	$t_r^*$	-	60	-	ns	$V_{GS}=-4.5V$
Turn-off delay time	$t_{d(off)}^*$	-	400	-	ns	$R_L=2.7\Omega$
Fall time	$t_f^*$	-	150	-	ns	$R_G=10\Omega$
Total gate charge	$Q_g^*$	-	40	-	nC	$I_D=-4.5A$
Gate-source charge	$Q_{gs}^*$	-	6.5	-	nC	$V_{DD}=-6V$
Gate-drain charge	$Q_{gd}^*$	-	6.0	-	nC	$V_{GS}=-4.5V$

\*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward Voltage	$V_{SD}^*$	-	-	-1.2	V	$I_S=-4.5A, V_{GS}=0V$

\*Pulsed