

● **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
RAL025P01		○

● **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	± 2.5 A
	Pulsed	I_{DP} *1	± 6 A
Source current (Body Diode)	Continuous	I_S	-0.8 A
	Pulsed	I_{SP} *1	-6 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 $\leq 1\%$

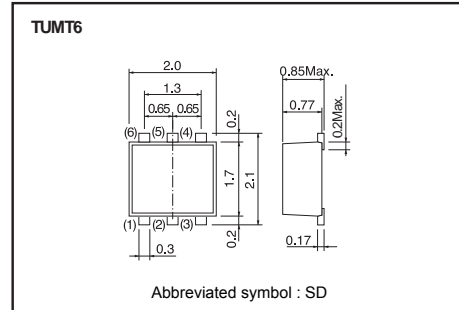
*2 Mounted on a ceramic board.

● **Thermal resistance**

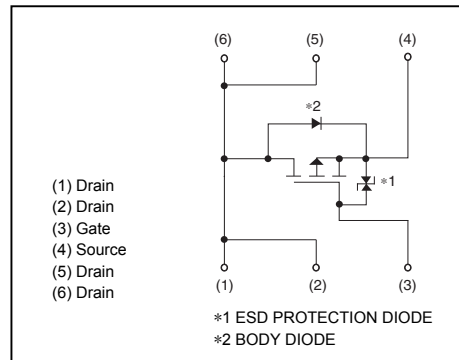
Parameter	Symbol	Limits	Unit
Channel to Ambient	$R_{th}(ch-a)^*$	125	°C / W

*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	μA	$V_{GS} = -8V, V_{DS} = 0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	-12	-	-	V	$I_D = -1mA, V_{GS} = 0V$
Zero gate voltage drain current	I_{DSS}	-	-	-10	μA	$V_{DS} = -12V, V_{GS} = 0V$
Gate threshold voltage	$V_{GS(th)}$	-0.3	-	-1.0	V	$V_{DS} = -6V, I_D = -1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	-	44	62	m Ω	$I_D = -2.5A, V_{GS} = -4.5V$
		-	55	77		$I_D = -1.2A, V_{GS} = -2.5V$
		-	75	110		$I_D = -1.2A, V_{GS} = -1.8V$
		-	90	180		$I_D = -0.5A, V_{GS} = -1.5V$
Forward transfer admittance	$ Y_{fs} ^*$	3.5	-	-	S	$I_D = -2.5A, V_{DS} = -6V$
Input capacitance	C_{iss}	-	2000	-	pF	$V_{DS} = -6V$
Output capacitance	C_{oss}	-	130	-	pF	$V_{GS} = 0V$
Reverse transfer capacitance	C_{rss}	-	120	-	pF	$f = 1MHz$
Turn-on delay time	$t_{d(on)}^*$	-	11	-	ns	$I_D = -1.2A, V_{DD} = -6V$
Rise time	t_r^*	-	40	-	ns	$V_{GS} = -4.5V$
Turn-off delay time	$t_{d(off)}^*$	-	160	-	ns	$R_L = 5\Omega$
Fall time	t_f^*	-	60	-	ns	$R_G = 10\Omega$
Total gate charge	Q_g^*	-	16	-	nC	$I_D = -2.5A$
Gate-source charge	Q_{gs}^*	-	2.4	-	nC	$V_{DD} = -6V$
Gate-drain charge	Q_{gd}^*	-	2.2	-	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	$I_S = -2.5A, V_{GS} = 0V$

*Pulsed