Composite Transistor For high speed switching Silicon P-channel MOSFET

## **DESCRIPTION**

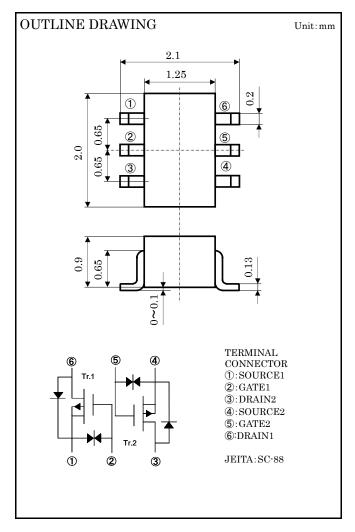
RT3J33M is a composite transistor built with two INJ0003AX chips in SC-88 package.

#### **FEATURE**

- •Input impedance is high, and not necessary to consider a drive electric current.
- •Vth is low, and drive by low voltage is possible. Vth= $0.6 \sim 1.2 \text{V}$
- •Low on Resistance. Ron= $2\Omega(TYP)$
- ·High speed switching.
- ·Small package for easy mounting.

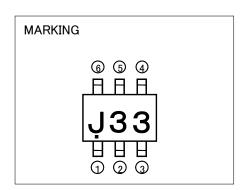
## **APPLICATION**

high speed switching, Analog switching



## MAXIMUM RATING (Ta=25°C)

| SYMBOL             | PARAMETER                        | RATING            | UNIT |  |
|--------------------|----------------------------------|-------------------|------|--|
| $V_{\mathrm{DSS}}$ | Drain-source voltage             | -20               | V    |  |
| VGSS               | Gate-source voltage              | ±8                | V    |  |
| ID                 | Drain current                    | -200              | mA   |  |
| $P_{D}$            | Total power dissipation(Ta=25°C) | 150               | mW   |  |
| $T_{\mathrm{ch}}$  | Channel temperature              | +125              | °C   |  |
| $T_{\mathrm{stg}}$ | Range of Storage temperature     | -55 <b>~</b> +125 | °C   |  |



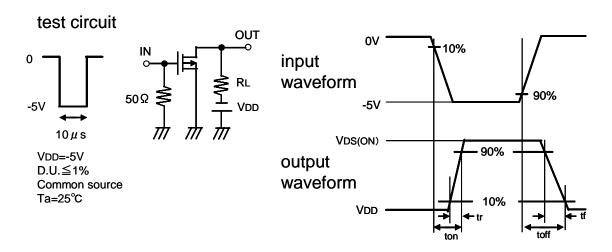
## RT3J33M

Composite Transistor For high speed switching Silicon P-channel MOSFET

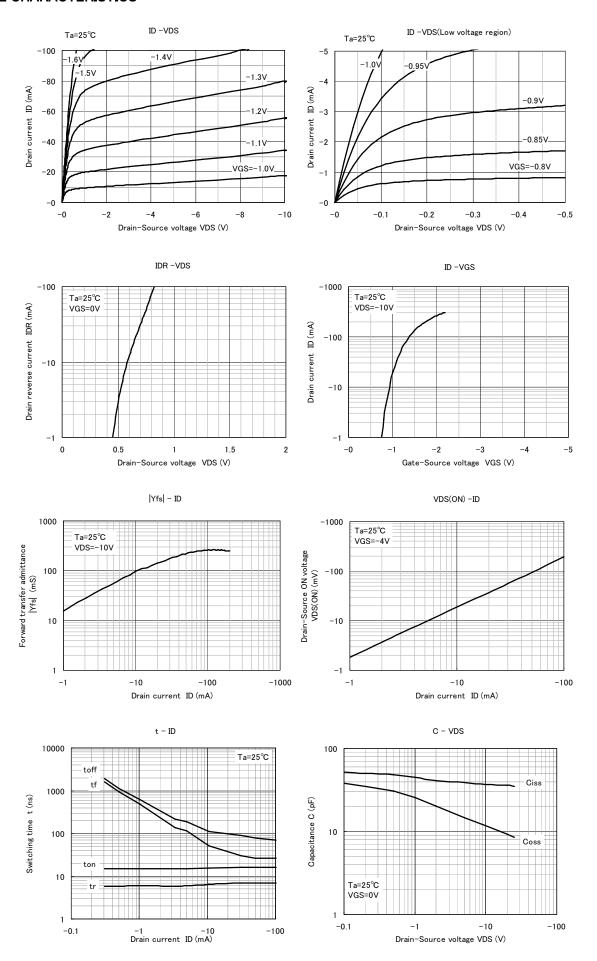
# ELECTRICAL CHARACTERISTICS (Ta=25°C)

| Symbol       | Parameter                               | Test conditions                                   | Limits |     |      | Unit  |
|--------------|---|---|--------|-----|------|-------|
|              |   |   | Min    | Typ | Max  | Oilit |
| V(BR)DSS     | Drain-source breakdown voltage          | $I_{D}$ =-100 $\mu$ A, $V_{GS}$ =0V               | -20    | -   | _    | ٧     |
| Igss         | Gate-source leak current                | $V_{GS} = \pm 5V, V_{DS} = 0V$                    | -      | -   | ±0.5 | μΑ    |
| <b>I</b> DSS | Zero gate voltage drain current         | V <sub>DS</sub> =-20V ,V <sub>GS</sub> =0V        | -      | _   | -50  | μΑ    |
| $V_{th}$     | Gate threshold voltage                  | $I_D=-250 \mu A, V_{DS}=V_{GS}$                   | -0.6   | _   | -1.2 | ٧     |
| Yfs          | Forward transfer admittance             | V <sub>DS</sub> =-10V, I <sub>D</sub> =-0.1A      | -      | 280 | -    | mS    |
| RDS(ON)      | Static drain-source on-state resistance | $I_D=-100$ mA, $V_{GS}=-4.0$ V                    | -      | 2   | -    | Ω     |
| Ciss         | Input capacitance                       | V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V,f=1MHz | -      | 37  | -    | pF    |
| Coss         | Output capacitance                      | V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V,f=1MHz | -      | 12  | -    | pF    |
| ton          | - Switching time                        | $V_{DD}$ =-5 $V$ , $I_{D}$ =-10mA                 | -      | 16  | -    |       |
| toff         |   | V <sub>gs</sub> =0~-5V                            | -      | 110 | -    | ns    |

# Switching time test condition



## TYPICAL CHARACTERISTICS





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