

## Absolute maximum ratings

( $T_a=25^\circ\text{C}$ )

| Symbol              | Ratings  | Unit               |
|---------------------|--|--------------------|
| $V_{DSS}$           | 500  | V                  |
| $V_{GSS}$           | $\pm 30$   | V                  |
| $I_D$               | $\pm 5$  | A                  |
| $I_D(\text{pulse})$ | $\pm 10$ ( $PW \leq 1\text{ms}$ , $D_u \leq 1\%$ )                                 | A                  |
| $E_{AS}^*$          | 45   | mJ                 |
| $P_T$               | 4 ( $T_a=25^\circ\text{C}$ , with all circuits operating, without heatsink)        | W                  |
|                     | 35 ( $T_c=25^\circ\text{C}$ , with all circuits operating, with infinite heatsink) | W                  |
| $\theta_{j-a}$      | 31.2 (Junction-Air, $T_a=25^\circ\text{C}$ , with all circuits operating)          | $^\circ\text{C/W}$ |
| $\theta_{j-c}$      | 3.57 (Junction-Case, $T_c=25^\circ\text{C}$ , with all circuits operating)         | $^\circ\text{C/W}$ |
| $T_{ch}$            | 150  | $^\circ\text{C}$   |
| $T_{stg}$           | -40 to +150  | $^\circ\text{C}$   |

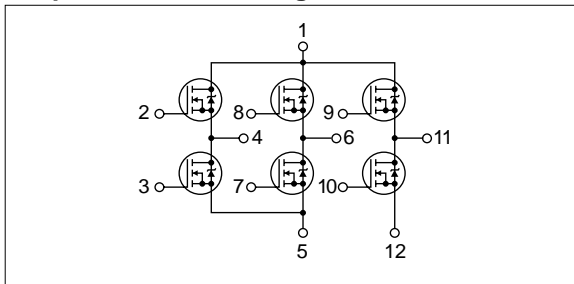
\* :  $V_{DD}=30\text{V}$ ,  $L=3.4\text{mH}$ ,  $I_D=5\text{A}$ , unclamped,  $R_G=50\Omega$ , see Fig. E on page 15.

## Electrical characteristics

( $T_a=25^\circ\text{C}$ )

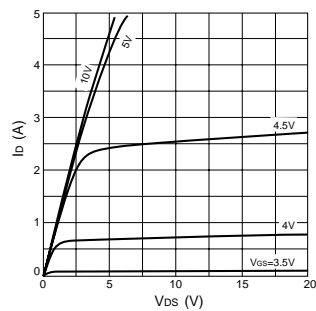
| Symbol        | Specification |      |           | Unit          | Conditions  |
|---------------|---------------|------|-----------|---------------|---|
|               | min           | typ  | max       |               |   |
| $V_{(BR)DSS}$ | 500           |      |           | V             | $I_D=100\mu\text{A}$ , $V_{GS}=0\text{V}$   |
| $I_{GSS}$     |               |      | $\pm 100$ | nA            | $V_{GS}=\pm 30\text{V}$   |
| $I_{DSS}$     |               |      | 100       | $\mu\text{A}$ | $V_{DS}=500\text{V}$ , $V_{GS}=0\text{V}$   |
| $V_{TH}$      | 2.0           |      | 4.0       | V             | $V_{DS}=10\text{V}$ , $I_D=1\text{mA}$  |
| $R_{e(yfs)}$  | 2.4           | 4.0  |           | S             | $V_{DS}=10\text{V}$ , $I_D=2.5\text{A}$   |
| $R_{DS(ON)}$  |               | 1.05 | 1.4       | $\Omega$      | $V_{GS}=10\text{V}$ , $I_D=2.5\text{A}$   |
| $C_{iss}$     |               | 770  |           | pF            | $V_{DS}=10\text{V}$ ,<br>$f=1.0\text{MHz}$ , $V_{GS}=0\text{V}$   |
| $C_{oss}$     |               | 290  |           | pF            |   |
| $t_{d(on)}$   |               | 20   |           | ns            | $I_D=2.5\text{A}$ ,<br>$V_{DD} \approx 200\text{V}$ ,<br>$R_L=80\Omega$ , $V_{GS}=10\text{V}$ ,<br>see Fig. 3 on page 16. |
| $t_r$         |               | 25   |           | ns            |   |
| $t_{d(off)}$  |               | 70   |           | ns            |   |
| $t_f$         |               | 65   |           | ns            |   |
| $V_{SD}$      |               | 1.1  | 1.5       | V             |   |
| $t_{rr}$      |               | 75   |           | ns            | $I_{SD}=2.5\text{A}$ , $di/dt=100\text{A}/\mu\text{s}$  |

## Equivalent circuit diagram

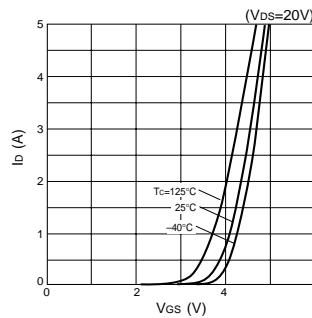


## Characteristic curves

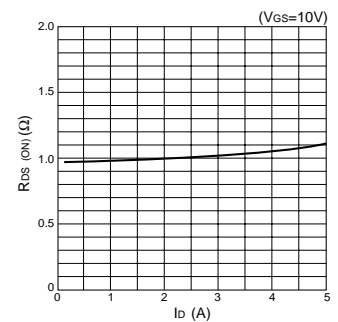
$I_D$ - $V_{DS}$  Characteristics (Typical)



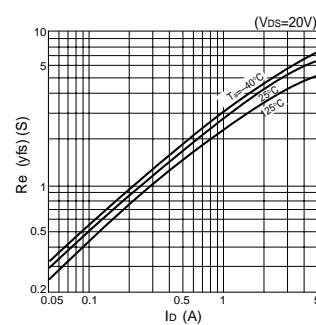
$I_D$ - $V_{GS}$  Characteristics (Typical)



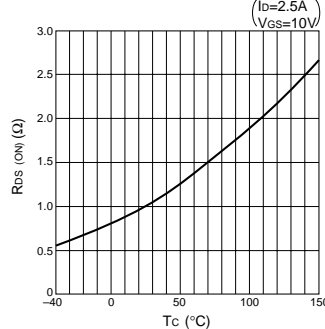
$R_{DS(ON)}$ - $I_D$  Characteristics (Typical)



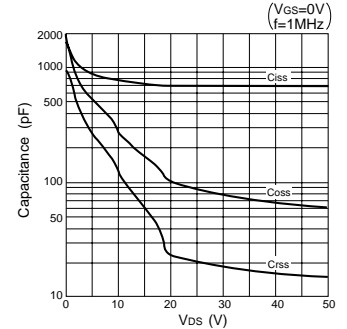
$R_{e(yfs)}$ - $I_D$  Characteristics (Typical)



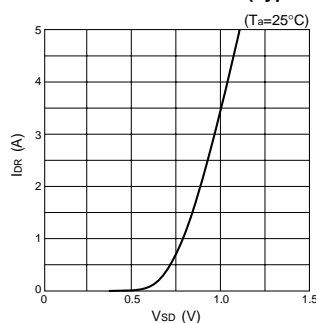
$R_{DS(ON)}$ - $T_C$  Characteristics (Typical)



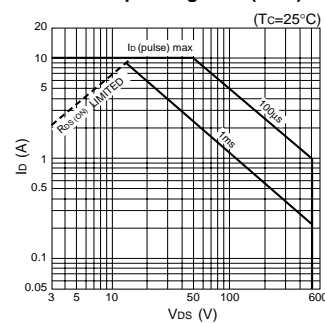
Capacitance- $V_{DS}$  Characteristics (Typical)



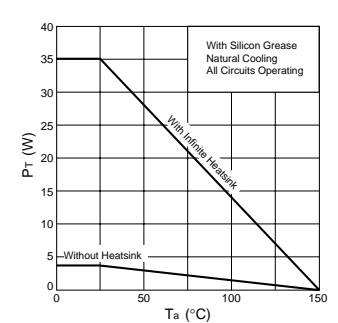
$I_{DR}$ - $V_{SD}$  Characteristics (Typical)



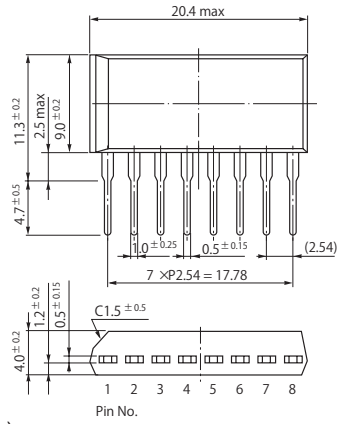
Safe Operating Area (SOA)



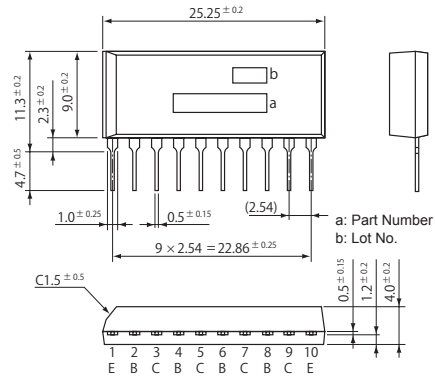
$P_T$ - $T_a$  Characteristics



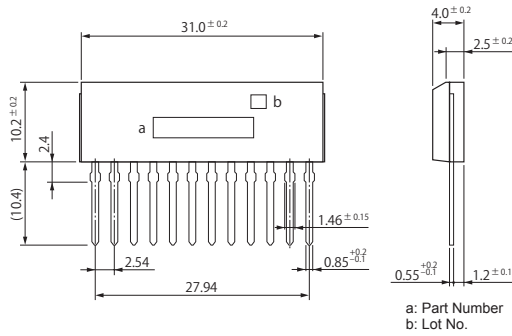
• SIP 8 (STA8Pin)



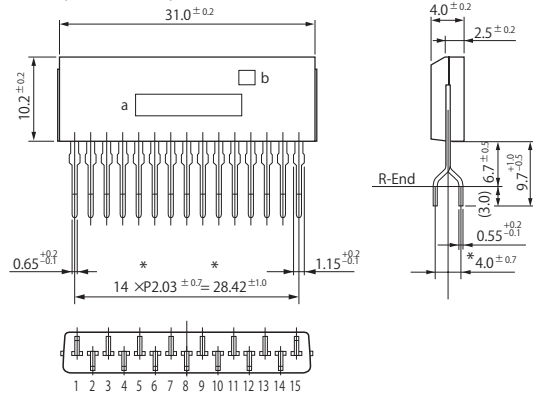
• SIP 10 (STA10Pin)



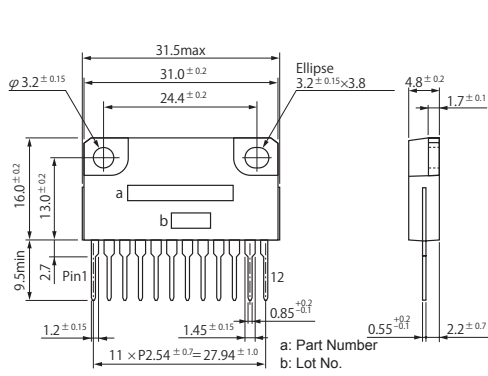
• SIP 12 (SMA12Pin)



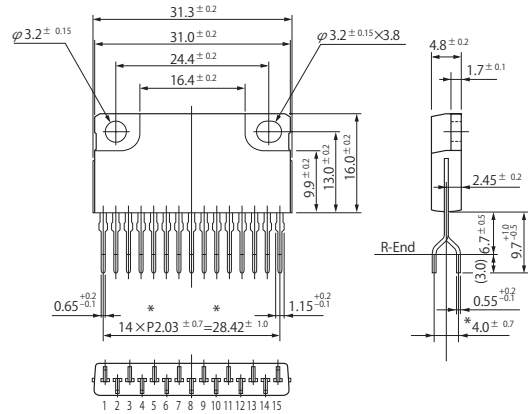
• SIP 15 (SMA15Pin)



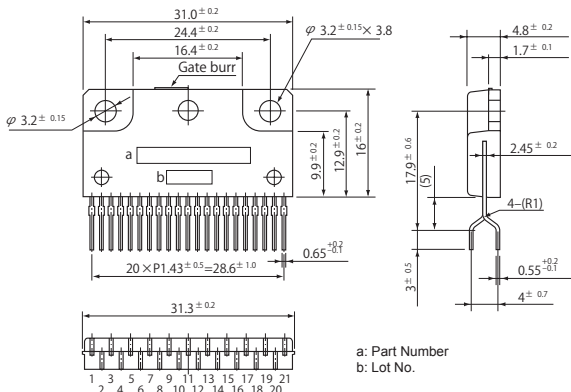
• SIP 12 with Fin (SLA12Pin)



• SIP 15 with Fin (SLA15Pin)



• SIP 21 with Fin (SLA21Pin)



(Unit:mm)