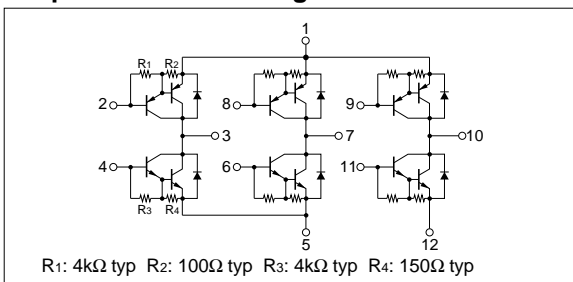


## Absolute maximum ratings

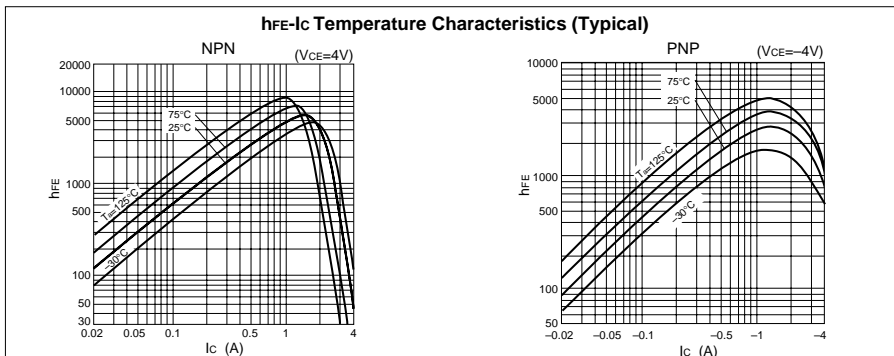
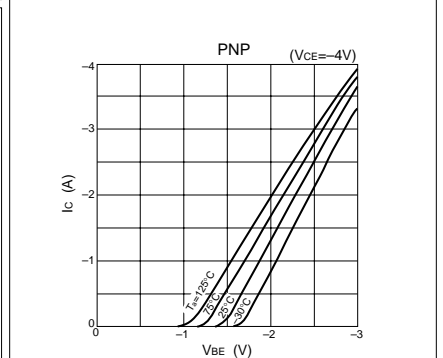
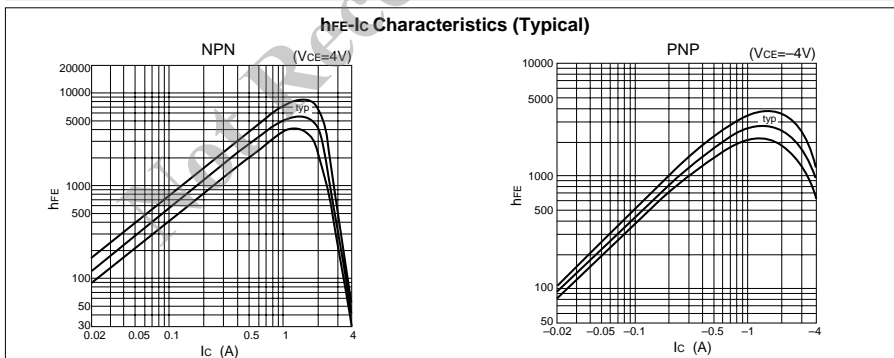
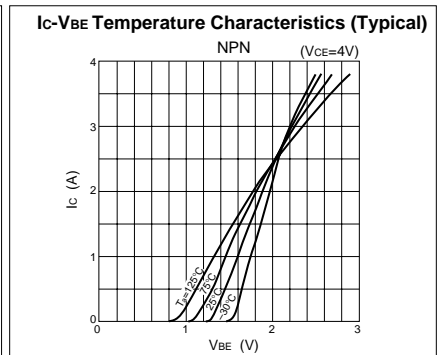
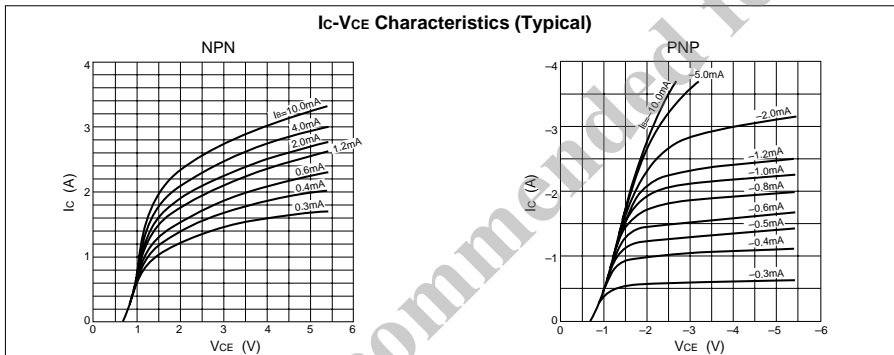
( $T_a=25^\circ\text{C}$ )

Symbol	Ratings		Unit
	NPN	PNP	
$V_{CBO}$	60	-60	V
$V_{CEO}$	60	-60	V
$V_{EBO}$	6	-6	V
$I_c$	2	-2	A
$I_{cP}$	4 ( $PW \leq 1\text{ms}$ , $D_u \leq 50\%$ )	-4 ( $PW \leq 1\text{ms}$ , $D_u \leq 50\%$ )	A
$I_B$	0.5	-0.5	A
$P_T$	4 ( $T_a=25^\circ\text{C}$ )		W
	20 ( $T_c=25^\circ\text{C}$ )		
$T_j$	150		$^\circ\text{C}$
$T_{stg}$	-40 to +150		$^\circ\text{C}$
$\theta_{j-c}$	6.25		$^\circ\text{C/W}$

## Equivalent circuit diagram



## Characteristic curves

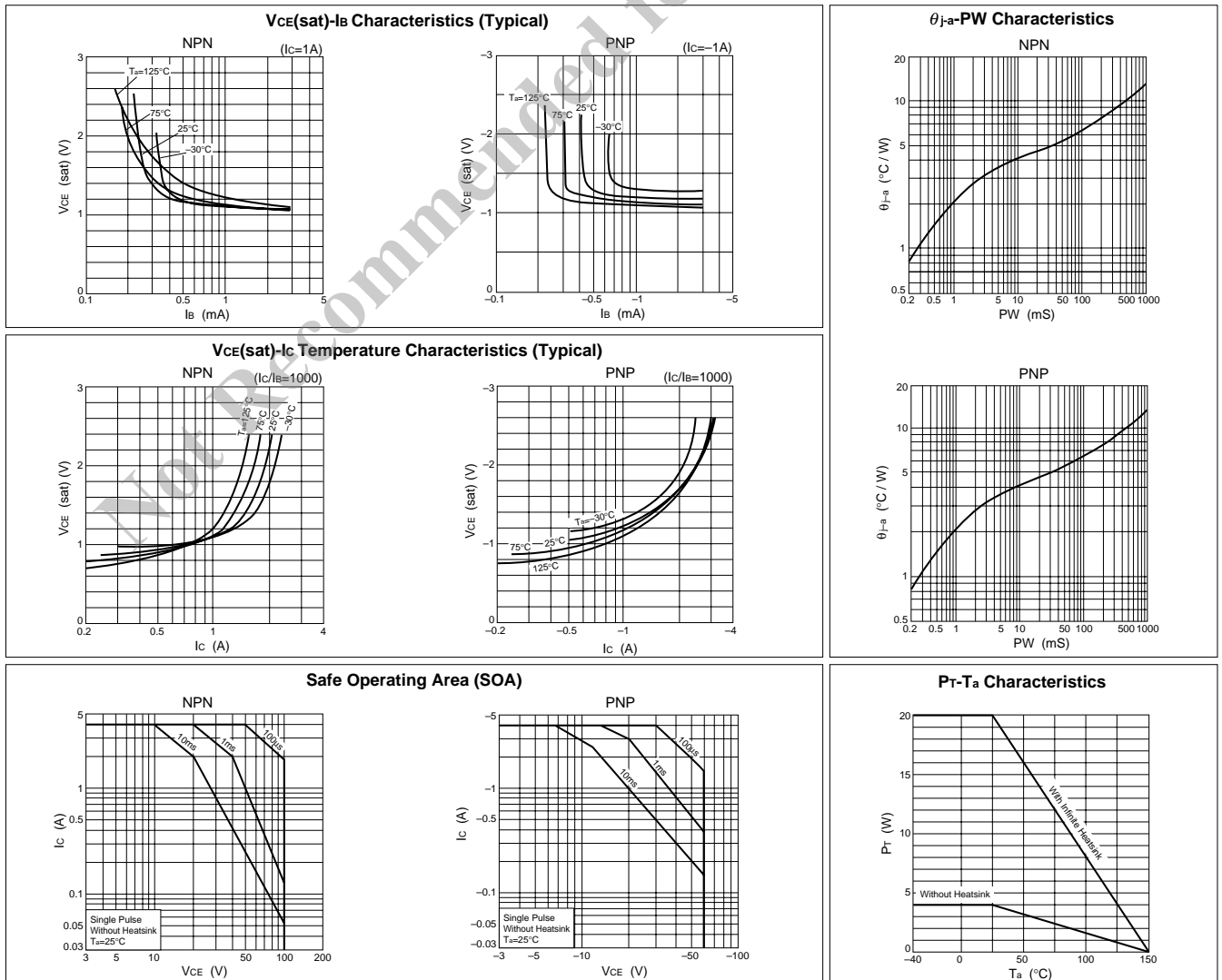


## Electrical characteristics

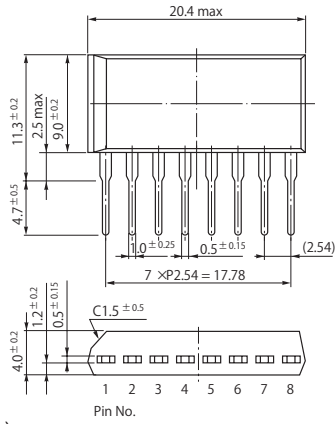
( $T_a=25^\circ\text{C}$ )

Symbol	NPN					PNP				
	Specification			Unit	Conditions	Specification			Unit	Conditions
	min	typ	max			min	typ	max		
$I_{CBO}$			10	$\mu\text{A}$	$V_{CB}=60\text{V}$			-10	$\mu\text{A}$	$V_{CB}=-60\text{V}$
$I_{EBO}$			5	$\text{mA}$	$V_{EB}=6\text{V}$			-5	$\text{mA}$	$V_{EB}=-6\text{V}$
$V_{CEO}$	60			$\text{V}$	$I_C=10\text{mA}$	-60			$\text{V}$	$I_C=-10\text{mA}$
$h_{FE}$	2000	5000	12000		$V_{CE}=4\text{V}, I_C=1\text{A}$	2000	5000	12000		$V_{CE}=-4\text{V}, I_C=-1\text{A}$
$V_{CE(sat)}$		1.1	1.5	$\text{V}$	$I_C=1\text{A}, I_B=2\text{mA}$		-1.2	-1.5	$\text{V}$	$I_C=-1\text{A}, I_B=-2\text{mA}$
$V_{BE(sat)}$		1.8	2.2	$\text{V}$			-1.9	-2.2	$\text{V}$	
$V_{FEC}$		1.3	1.8	$\text{V}$	$I_{FEC}=1\text{A}$		-1.3	-1.8	$\text{V}$	$I_{FEC}=-1\text{A}$
$t_{on}$		0.5		$\mu\text{s}$	$V_{CC}=\pm 30\text{V}, I_C=1\text{A}, I_{B1}=-I_{B2}=2\text{mA}$		0.4		$\mu\text{s}$	$V_{CC}=\pm 30\text{V}, I_C=-1\text{A}, I_{B1}=-I_{B2}=-2\text{mA}$
$t_{stg}$		4.5		$\mu\text{s}$			1.0		$\mu\text{s}$	
$t_f$		1.2		$\mu\text{s}$			0.4		$\mu\text{s}$	
$f_T$		50		$\text{MHz}$	$V_{CE}=12\text{V}, I_E=-0.1\text{A}$		100		$\text{MHz}$	$V_{CE}=-12\text{V}, I_E=0.1\text{A}$
$C_{ob}$		20		$\text{pF}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		30		$\text{pF}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$

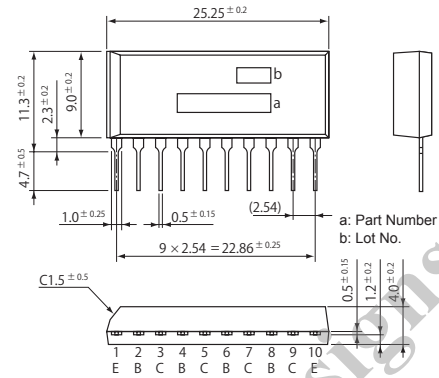
## Characteristic curves



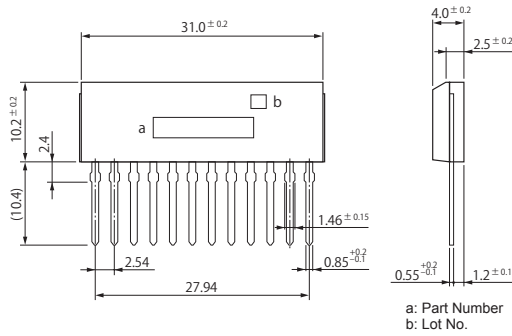
• SIP 8 (STA8Pin)



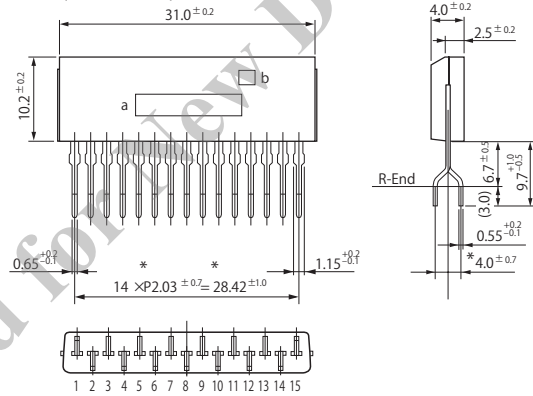
• SIP 10 (STA10Pin)



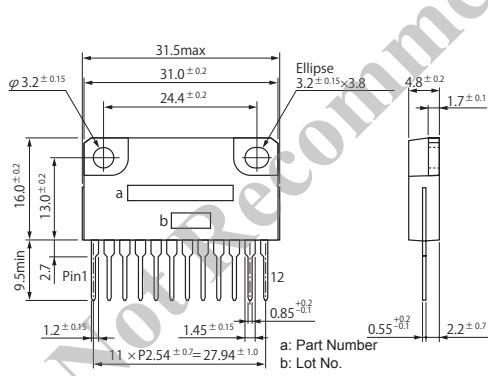
• SIP 12 (SMA12Pin)



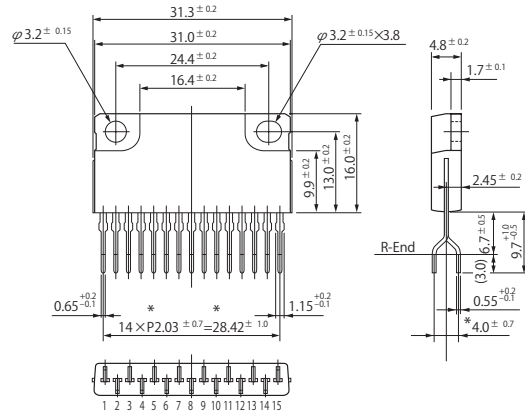
• SIP 15 (SMA15Pin)



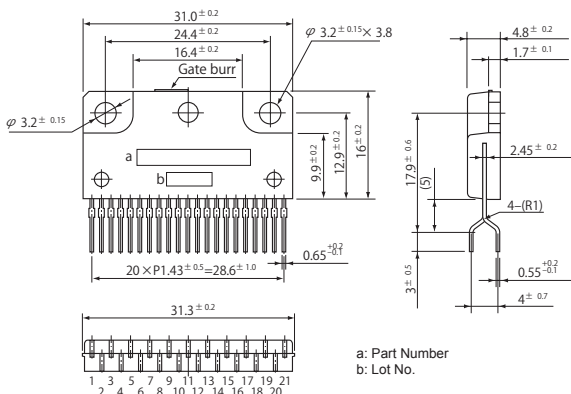
• SIP 12 with Fin (SLA12Pin)



• SIP 15 with Fin (SLA15Pin)



• SIP 21 with Fin (SLA21Pin)



(Unit:mm)