

# STA309A

PNP Darlington

General purpose/3-phase motor drive

External dimensions STA (8-pin)

## Absolute maximum ratings

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

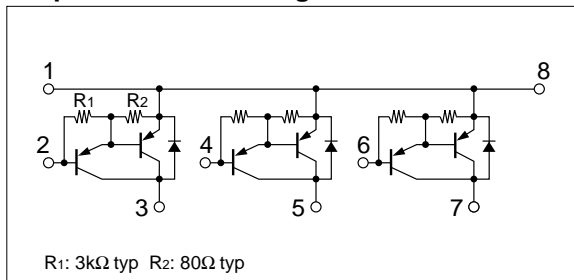
Symbol	Ratings	Unit
$V_{CBO}$	-250	V
$V_{CEO}$	-250	V
$V_{EBO}$	-6	V
$I_C$	-2.5	A
$I_{CP}$	-4 (PW $\leq$ 1mS)	A
$I_B$	-0.5	A
$P_T$	3 ( $T_a=25^\circ\text{C}$ )	W
	15 ( $T_c=25^\circ\text{C}$ )	
$T_j$	150	$^\circ\text{C}$
$T_{stg}$	-40 to +150	$^\circ\text{C}$
$\theta_{j-c}$	8.33	$^\circ\text{C/W}$

## Electrical characteristics

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

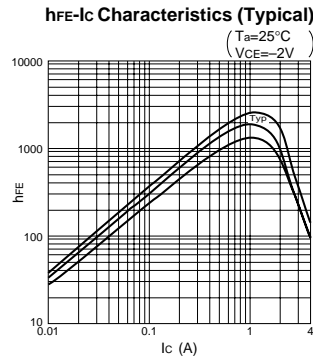
Symbol	Specification			Unit	Conditions
	min	typ	max		
$I_{CBO}$			-100	$\mu\text{A}$	$V_{CB}=-250\text{V}$
$I_{EBO}$			-10	mA	$V_{EB}=-6\text{V}$
$V_{CEO}$	-250			V	$I_C=-1\text{mA}$
$h_{FE}$	1000				$V_{CE}=-4\text{V}$ , $I_C=-1\text{A}$
$V_{CE(sat)}$			-1.5	V	$I_C=-2\text{A}$ , $I_B=-4\text{mA}$
$V_{BE(sat)}$			-2.2	V	
$V_{FEC}$		1		V	$I_{FEC}=1\text{A}$
$t_{on}$		0.5		$\mu\text{s}$	$V_{CC}=-100\text{V}$ , $I_C=-1\text{A}$ , $I_{B1}=-I_{B2}=-10\text{mA}$
$t_{stg}$		4		$\mu\text{s}$	
$t_f$		0.5		$\mu\text{s}$	
$C_{ob}$		70		pF	$V_{CB}=-10\text{V}$ , $f=1\text{MHz}$

## Equivalent circuit diagram

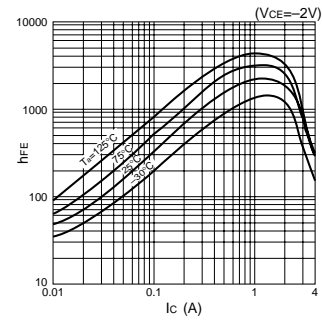


## Characteristic curves

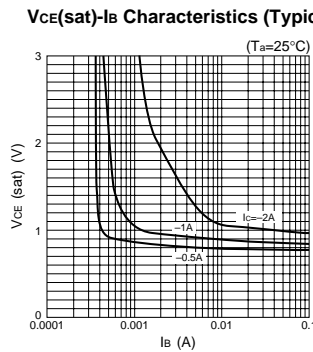
$I_C$ - $V_{CE}$  Characteristics (Typical)



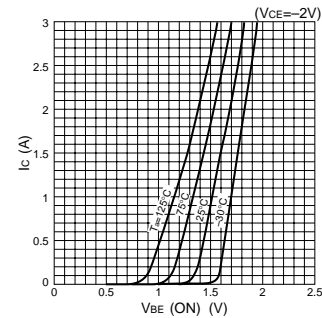
$h_{FE}$ - $I_C$  Temperature Characteristics (Typical)



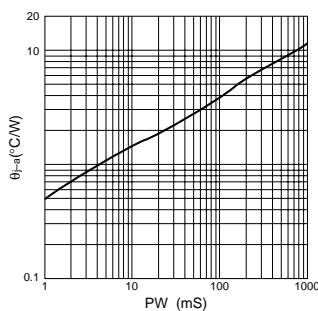
$V_{CE(sat)}$ - $I_C$  Temperature Characteristics (Typical)



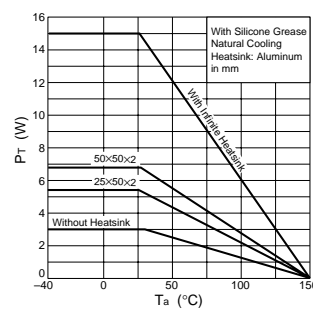
$I_C$ - $V_{BE}$  Temperature Characteristics (Typical)



$\theta_{j-a}$ -PW Characteristics



$P_T$ - $T_a$  Characteristics



Safe Operating Area (SOA)

