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# STA481A

NPN Darlington

With built-in avalanche diode

External dimensions STA (10-pin)

## Absolute maximum ratings

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

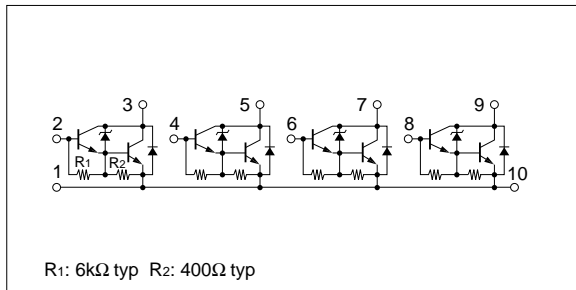
Symbol	Ratings	Unit
$V_{CB0}$	$60\pm 10$	V
$V_{CE0}$	$60\pm 10$	V
$V_{EBO}$	6	V
$I_C$	1	A
$I_{CP}$	2.5 ( $PW\leq 1\text{ms}$ , $D_u\leq 25\%$ )	A
$I_B$	0.5	A
$P_T$	4 ( $T_a=25^\circ\text{C}$ )	W
	16 ( $T_c=25^\circ\text{C}$ )	
$T_j$	150	$^\circ\text{C}$
$T_{stg}$	-40 to +150	$^\circ\text{C}$

## Electrical characteristics

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

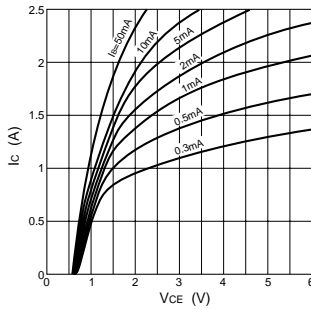
Symbol	Specification			Unit	Conditions
	min	typ	max		
$I_{CB0}$			10	$\mu\text{A}$	$V_{CB}=50\text{V}$
$I_{EBO}$			3	mA	$V_{EB}=6\text{V}$
$V_{CE0}$	50	60	70	V	$I_C=1\text{mA}$
$h_{FE}$	2000	5000	10000		$V_{CE}=4\text{V}$ , $I_C=0.5\text{A}$
$V_{CE(sat)}$		1.0	1.5	V	$I_C=0.5\text{A}$ , $I_B=1\text{mA}$
$V_{BE(sat)}$		1.6	2.2	V	
$V_{FEC}$		1.4	1.8	V	$I_{FEC}=0.5\text{A}$
$t_{on}$		0.5		$\mu\text{s}$	$V_{CC}\doteq 30\text{V}$ , $I_C=0.5\text{A}$ , $I_{B1}=-I_{B2}=1\text{mA}$
$t_{stg}$		2.5		$\mu\text{s}$	
$t_f$		1.0		$\mu\text{s}$	
$f_T$		50		MHz	$V_{CE}=12\text{V}$ , $I_E=-0.1\text{A}$
$C_{ob}$		14		pF	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$

## Equivalent circuit diagram

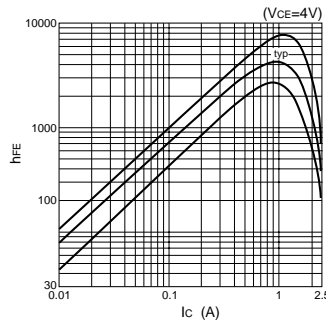


## Characteristic curves

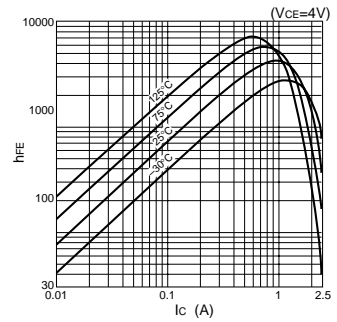
$I_C$ - $V_{CE}$  Characteristics (Typical)



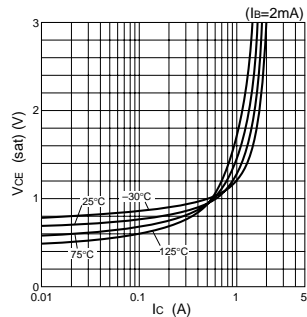
$h_{FE}$ - $I_C$  Characteristics (Typical)



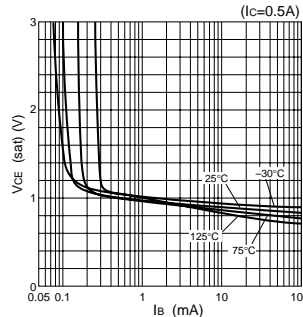
$h_{FE}$ - $I_C$  Temperature Characteristics (Typical)



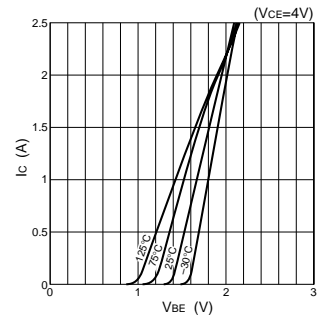
$V_{CE(sat)}$ - $I_C$  Temperature Characteristics (Typical)



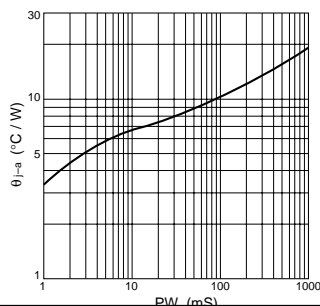
$V_{CE(sat)}$ - $I_B$  Temperature Characteristics (Typical)



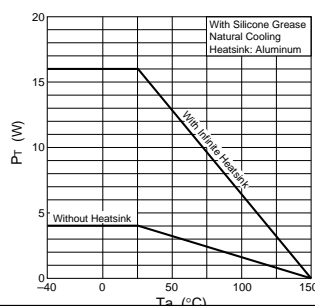
$I_C$ - $V_{BE}$  Temperature Characteristics (Typical)



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



$P_T$ - $T_a$  Characteristics



Safe Operating Area (SOA)

