



# THE DATASHEET OF STA471A



#### Absolute maximum ratings

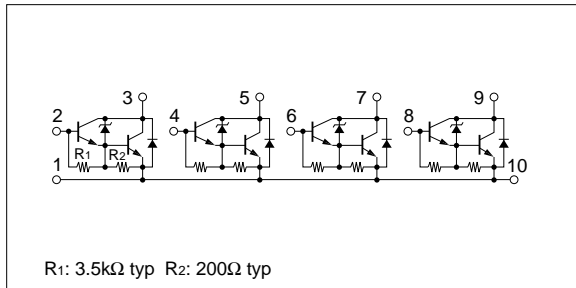
( $T_a=25^\circ\text{C}$ )

Symbol	Ratings	Unit
$V_{CB0}$	$60\pm 10$	V
$V_{CE0}$	$60\pm 10$	V
$V_{EB0}$	6	V
$I_c$	2	A
$I_{CP}$	4 ( $PW\leq 1\text{ms}$ , $D_u\leq 25\%$ )	A
$I_B$	0.5	A
$P_T$	4 ( $T_a=25^\circ\text{C}$ )	W
	20 ( $T_c=25^\circ\text{C}$ )	
$T_j$	150	$^\circ\text{C}$
$T_{stg}$	-40 to +150	$^\circ\text{C}$

#### Electrical characteristics

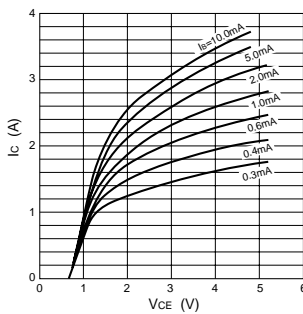
( $T_a=25^\circ\text{C}$ )

Symbol	Specification			Unit	Conditions
	min	typ	max		
$I_{CB0}$			10	$\mu\text{A}$	$V_{CB}=50\text{V}$
$I_{EB0}$			5	mA	$V_{EB}=6\text{V}$
$V_{CE0}$	50	60	70	V	$I_c=10\text{mA}$
$h_{FE}$	2000	5000	10000		$V_{CE}=4\text{V}$ , $I_c=1\text{A}$
$V_{CE(sat)}$		1.1	1.5	V	$I_c=1\text{A}$ , $I_B=2\text{mA}$
$V_{BE(sat)}$		1.8	2.2	V	
$V_{FEC}$		1.3	1.8	V	$I_{FEC}=1\text{A}$
$t_{on}$		0.5		$\mu\text{s}$	$V_{CC}\doteq 30\text{V}$ , $I_c=1\text{A}$ ,
$t_{stg}$		4.0		$\mu\text{s}$	
$t_f$		1.0		$\mu\text{s}$	$I_{B1}=-I_{B2}=2\text{mA}$
$f_T$		50		MHz	$V_{CE}=12\text{V}$ , $I_E=-0.1\text{A}$
$C_{ob}$		25		pF	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$

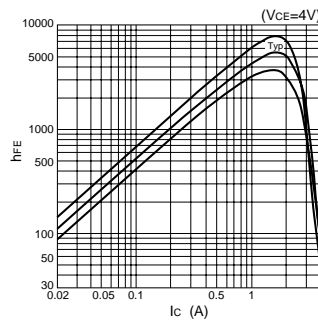


#### Characteristic curves

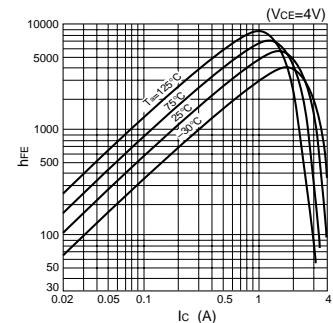
$I_c$ - $V_{CE}$  Characteristics (Typical)



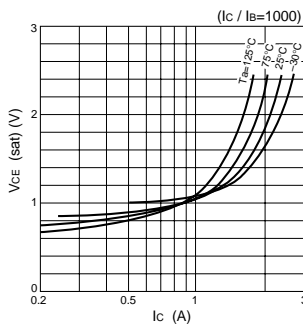
$h_{FE}$ - $I_c$  Characteristics (Typical)



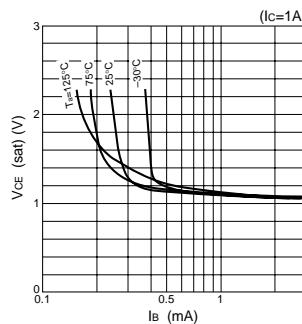
$h_{FE}$ - $I_c$  Temperature Characteristics (Typical)



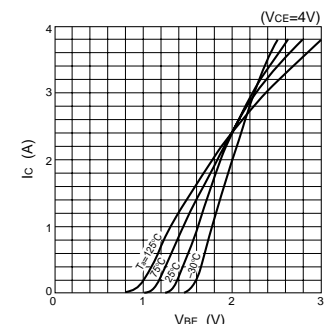
$V_{CE(sat)}$ - $I_c$  Temperature Characteristics (Typical)



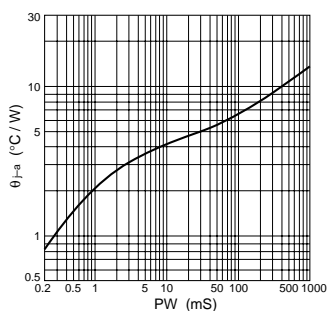
$V_{CE(sat)}$ - $I_B$  Temperature Characteristics (Typical)



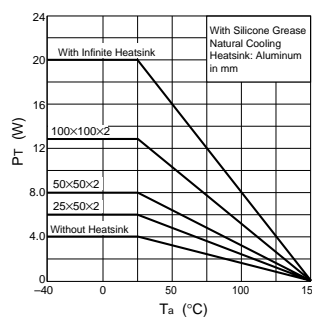
$I_c$ - $V_{BE}$  Temperature Characteristics (Typical)



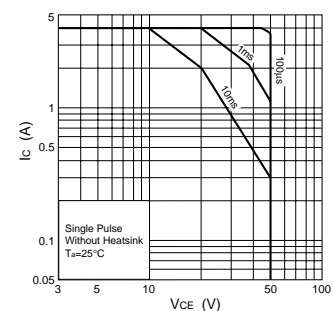
$\theta_{j-a}$ -PW Characteristics



$P_T$ - $T_a$  Characteristics





Safe Operating Area (SOA)




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