

STA474A

PNP + NPN Darlington
H-bridge

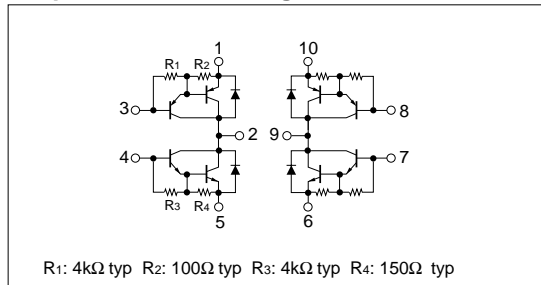
External dimensions  STA (10-pin)

Absolute maximum ratings

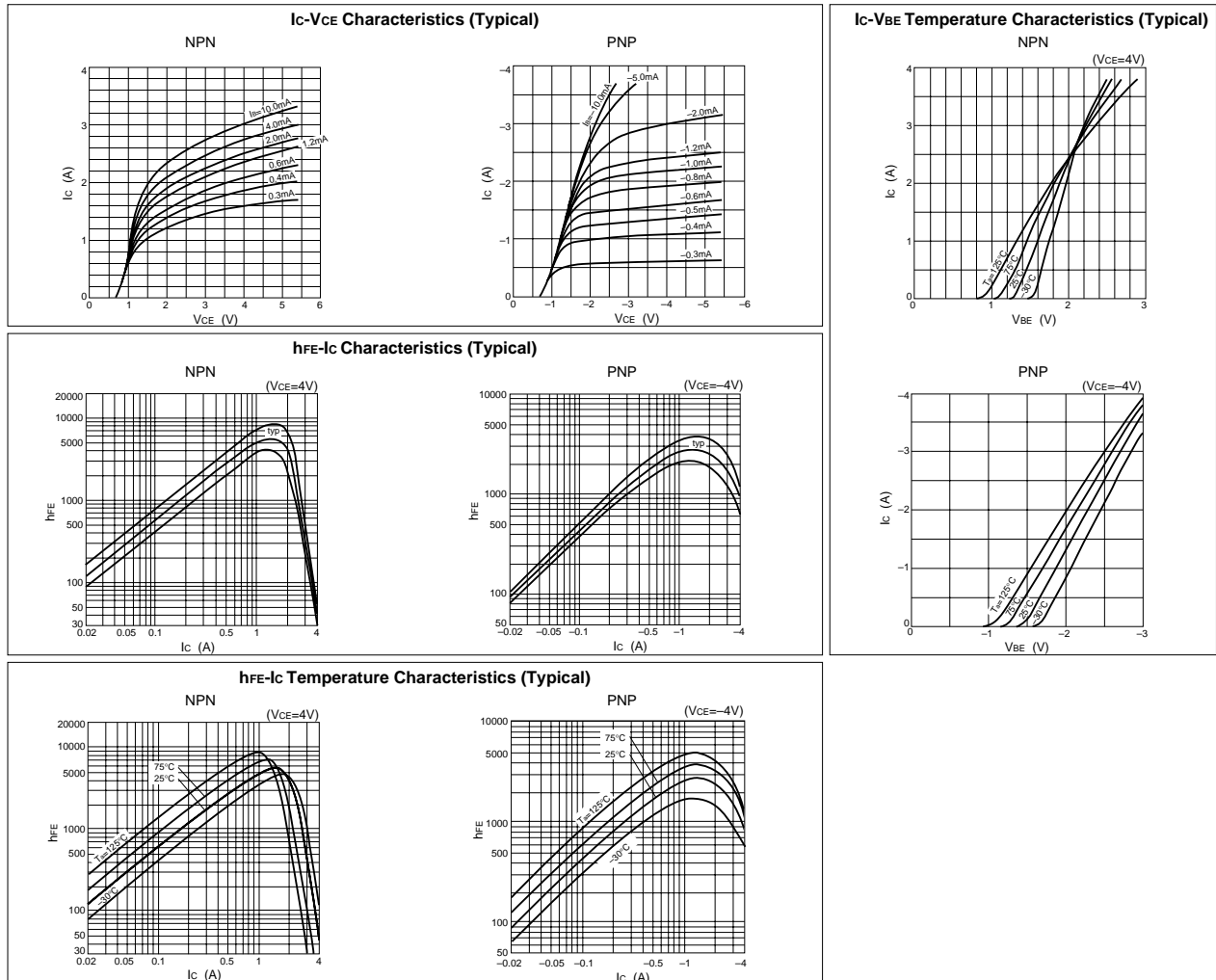
($T_a=25^\circ\text{C}$)

Symbol	Ratings		Unit
	NPN	PNP	
V_{CB0}	60	-60	V
V_{CE0}	60	-60	V
V_{EB0}	6	-6	V
I_C	2	-2	A
I_{CP}	4 ($PW \leq 1\text{ms}$, $D_u \leq 25\%$)	-4 ($PW \leq 1\text{ms}$, $D_u \leq 25\%$)	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		$^\circ\text{C}$
θ_{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	μA	$V_{CB}=60\text{V}$			-10	μA	$V_{CB}=-60\text{V}$
I_{EBO}			5	mA	$V_{EB}=6\text{V}$			-5	mA	$V_{EB}=-6\text{V}$
V_{CEO}	60			V	$I_c=10\text{mA}$	-60			V	$I_c=-10\text{mA}$
h_{FE}	2000	5000	12000		$V_{CE}=4\text{V}, I_c=1\text{A}$	2000	4000	10000		$V_{CE}=-4\text{V}, I_c=-1\text{A}$
$V_{CE}(\text{sat})$		1.1	1.5	V	$I_c=1\text{A}, I_b=2\text{mA}$		-1.2	-1.5	V	$I_c=-1\text{A}, I_b=-2\text{mA}$
$V_{BE}(\text{sat})$		1.8	2.2	V			-1.9	-2.2	V	
t_{on}		0.5		μs	$V_{CC}=\pm 30\text{V}, I_c=1\text{A}, I_b=\pm 2\text{mA}$		0.4		μs	$V_{CC}=\pm 30\text{V}, I_c=-1\text{A}, I_b=\pm 2\text{mA}$
t_{stg}		4.5		μs			1.0		μs	
t_f		1.2		μs			0.4		μs	
f_T		50		MHz	$V_{CE}=12\text{V}, I_E=-0.1\text{A}$		100		MHz	$V_{CE}=-12\text{V}, I_E=0.1\text{A}$
C_{ob}		20		pF	$V_{CE}=10\text{V}, f=1\text{MHz}$		30		pF	$V_{CE}=-10\text{V}, f=1\text{MHz}$
V_{FEC}		1.3	1.8	V	$I_{FEC}=1\text{A}$		-1.3	-1.8	V	$I_{FEC}=-1\text{A}$

Characteristic curves

