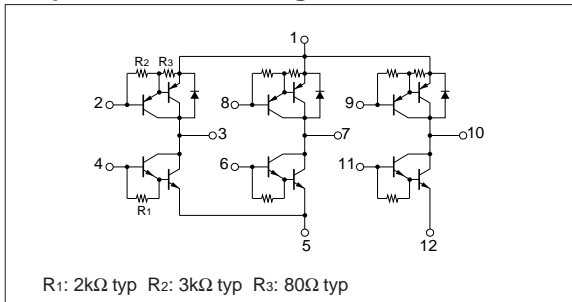


## Absolute maximum ratings

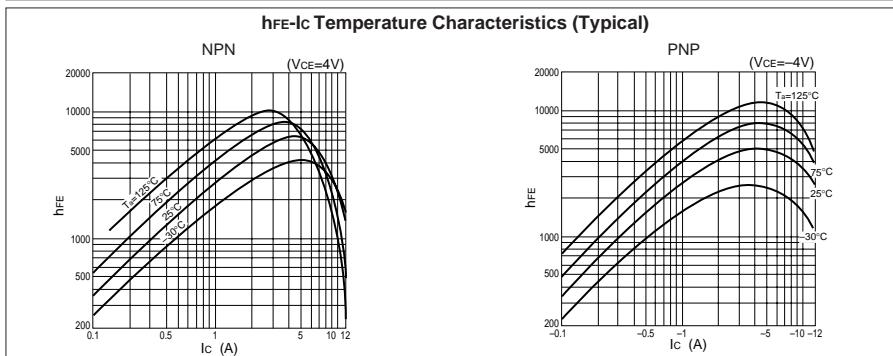
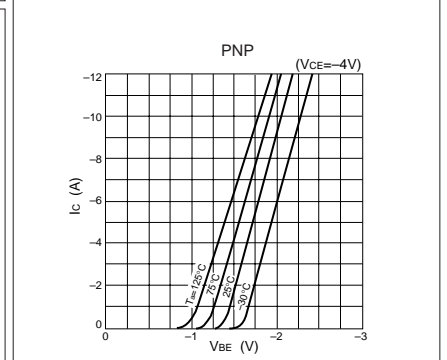
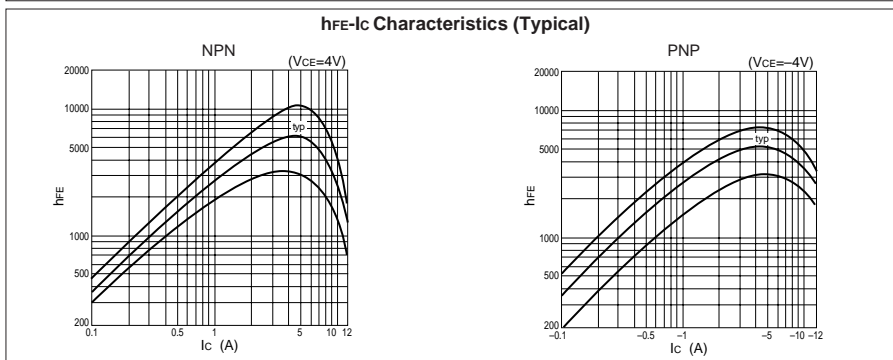
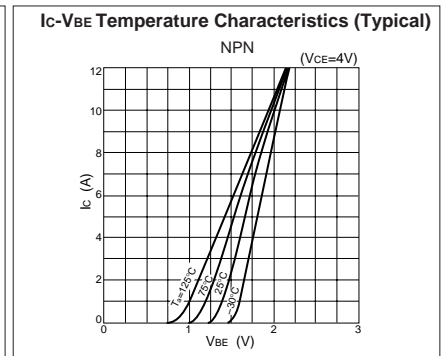
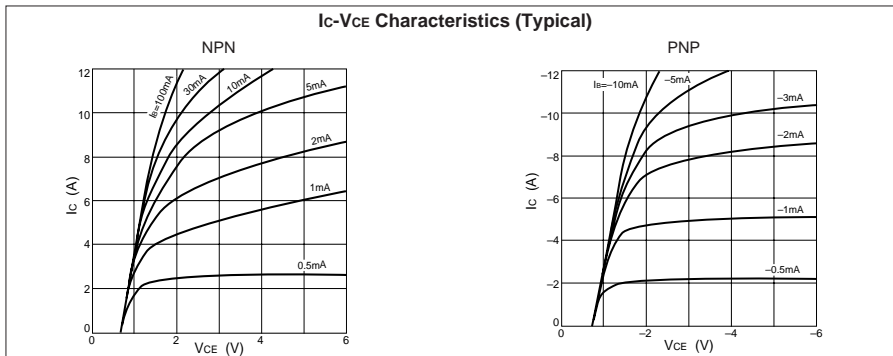
( $T_a=25^\circ\text{C}$ )

Symbol	Ratings		Unit
	NPN	PNP	
$V_{CBO}$	60	-60	V
$V_{CEO}$	60	-60	V
$V_{EBO}$	6	-6	V
$I_c$	6	-6	A
$I_{CP}$	12 ( $PW \leq 1\text{ms}, D_u \leq 50\%$ )	-12 ( $PW \leq 1\text{ms}, D_u \leq 50\%$ )	A
$I_B$	0.5	-0.5	A
$P_T$	5 ( $T_a=25^\circ\text{C}$ )		W
	25 ( $T_c=25^\circ\text{C}$ )		
$V_{ISO}$	1000 (Between fin and lead pin, AC)		$V_{rms}$
$T_j$	150		$^\circ\text{C}$
$T_{stg}$	-40 to +150		$^\circ\text{C}$
$\theta_{j-c}$	5		$^\circ\text{C}/\text{W}$

## 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	$\mu\text{A}$	$V_{CB}=-60\text{V}$	
$I_{EBO}$			10	$\mu\text{A}$	$V_{EB}=6\text{V}$			-10	$\text{mA}$	$V_{EB}=-6\text{V}$	
$V_{CEO}$	60			$\text{V}$	$I_C=25\text{mA}$	-60			$\text{V}$	$I_C=-25\text{mA}$	
$h_{FE}$	2000	5000	12000		$V_{CE}=4\text{V}, I_C=5\text{A}$	2000	5000	12000		$V_{CE}=-4\text{V}, I_C=-5\text{A}$	
$V_{CE(sat)}$			1.5	$\text{V}$	$I_C=5\text{A}, I_B=10\text{mA}$			-1.5	$\text{V}$	$I_C=-5\text{A}, I_B=-10\text{mA}$	
$V_{BE(sat)}$			2.0	$\text{V}$				-2.0	$\text{V}$		
$V_{FEC}$				$\text{V}$				2.0	$\text{V}$		$I_{FEC}=5\text{A}$
$t_{rr}$				$\mu\text{s}$			1.0		$\mu\text{s}$	$I_{FEC}=\pm 0.5\text{A}$	
$t_{on}$		0.8		$\mu\text{s}$	$V_{CC}=25\text{V}, I_C=5\text{A}, I_{B1}=-I_{B2}=10\text{mA}$			1.0		$\mu\text{s}$	$V_{CC}=-25\text{V}, I_C=-5\text{A}, I_{B1}=-I_{B2}=-10\text{mA}$
$t_{stg}$		6.0		$\mu\text{s}$				1.4		$\mu\text{s}$	
$t_f$		2.0		$\mu\text{s}$				0.6		$\mu\text{s}$	
$f_T$		80		$\text{MHz}$				120		$\text{MHz}$	
$C_{ob}$		100		$\text{pF}$	$V_{CB}=10\text{V}, f=1\text{MHz}$			150		$\text{pF}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$

## Characteristic curves

