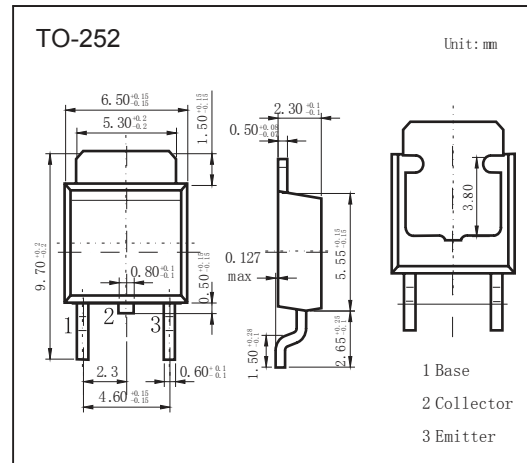


## PNP Transistors

## 2SA1413-Z



### ■ Features

- High Voltage:  $V_{CEO} = -600V$
- High Speed :  $t_r \leq 1\mu s$
- Complement to 2SC3632-Z

### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CBO}$	-600	V
Collector - Emitter Voltage	$V_{CEO}$	-600	
Emitter - Base Voltage	$V_{EBO}$	-7	
Collector Current - Continuous	$I_C$	-1	A
Collector Current - Pulse (Note.1)	$I_{CP}$	-2	
Collector Power Dissipation	$P_C$	2	W
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature range	$T_{stg}$	-55 to 150	

Note.1:  $PW \leq 10ms, Duty\ Cycle \leq 5\%$

### ■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_C = -100\mu A, I_E = 0$	-600			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = -1\text{ mA}, I_B = 0$	-600			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = -100\mu A, I_C = 0$	-7			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = -600V, I_E = 0$			-10	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -7V, I_C = 0$			-10	
Collector-emitter saturation voltage (Note.1)	$V_{CE(sat)}$	$I_C = -300\text{ mA}, I_B = -60\text{ mA}$		-0.28	-1	V
Base - emitter saturation voltage (Note.1)	$V_{BE(sat)}$	$I_C = -300\text{ mA}, I_B = -60\text{ mA}$		-0.85	-1.2	
DC current gain (Note.1)	$h_{FE(1)}$	$V_{CE} = -5V, I_C = -100\text{ mA}$	30	58	120	
	$h_{FE(2)}$	$V_{CE} = -5V, I_C = -500\text{ mA}$	5	19		
Turn-on time	$t_{on}$	$V_{CC} = -250V, I_C = -0.5A, I_{B1} = -I_{B2} = -0.1A, R_L = 500\Omega$		0.1	0.5	$\mu s$
Storage time	$t_{stg}$		3.5	5		
Turn -off time	$t_{off}$		0.08	0.5		
Collector output capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1\text{ MHz}$		42		pF
Transition frequency	$f_T$	$V_{CE} = -10V, I_E = 50\text{ mA}$		28		MHz

Note.1 : Pulsed:  $PW \leq 350\mu s, Duty\ Cycle \leq 2\%$

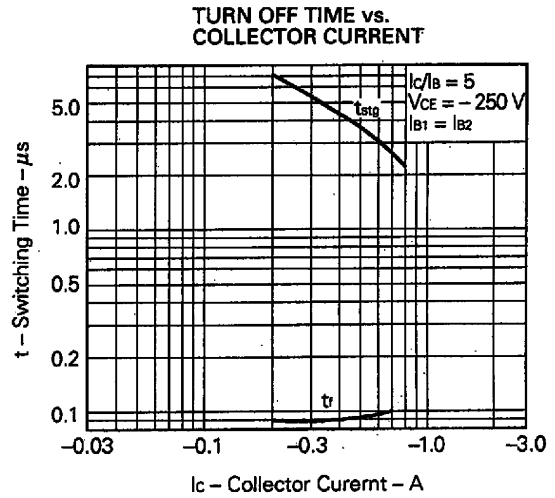
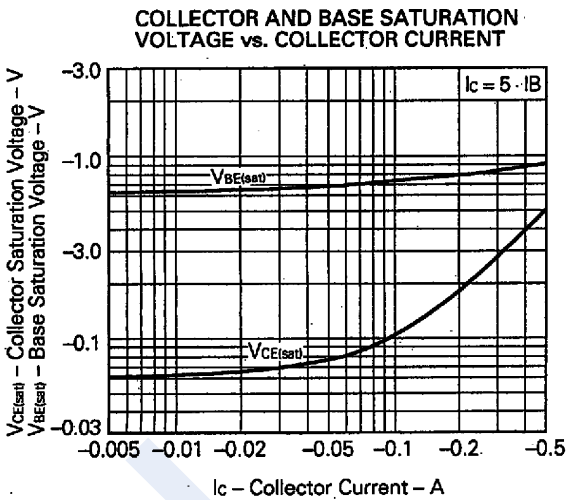
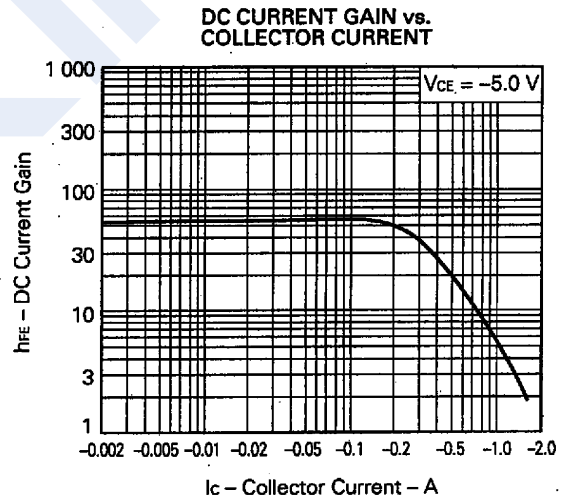
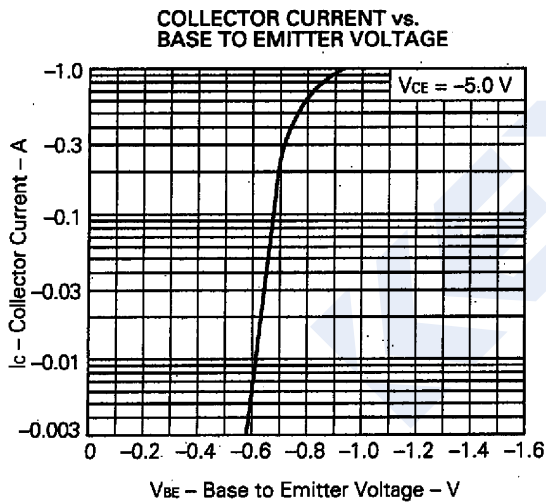
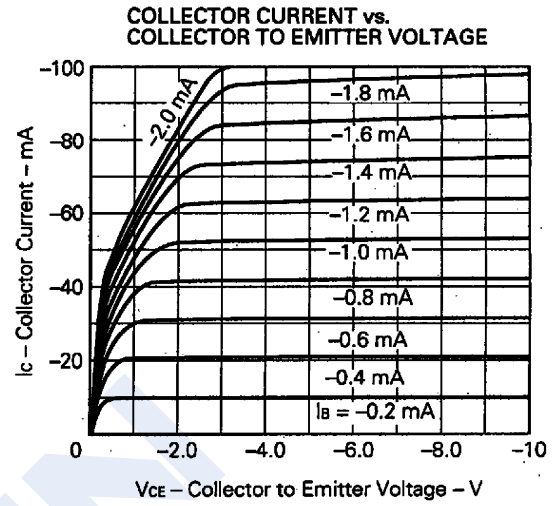
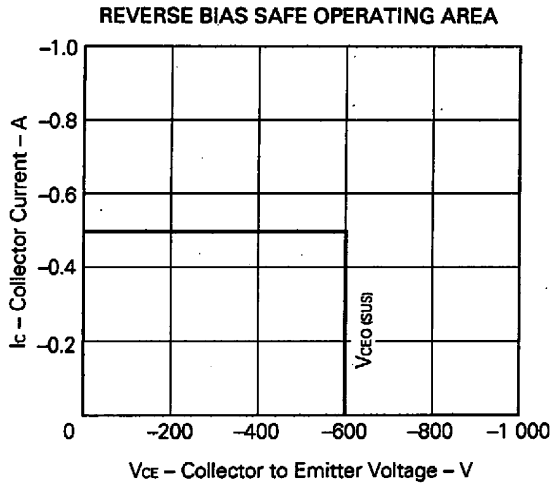
### ■ Classification of $h_{FE(1)}$

Type	2SA1413-Z-M	2SA1413-Z-L	2SA1413-Z-K
Range	30-60	40-80	60-120
Marking	**M	**L	**K

### PNP Transistors

### 2SA1413-Z

■ Typical Characteristics



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■ Typical Characteristics

