



## 2SA1258/2SC3144

### 60V/3A for High-Speed Drivers Applications

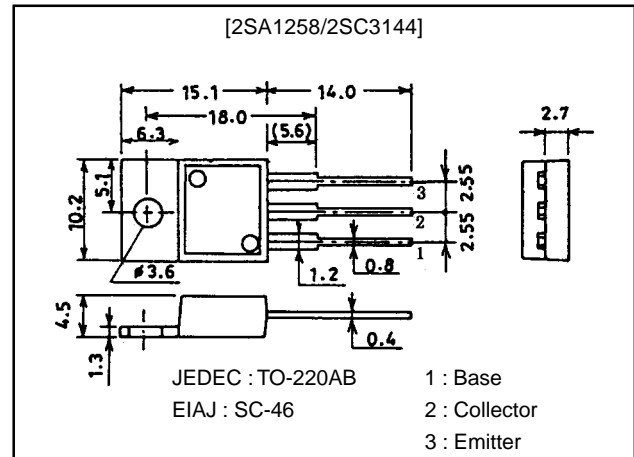
#### Features

- High  $f_T$ .
- High switching speed.
- Wide ASO.

#### Package Dimensions

unit:mm

2010C



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#### Specifications

##### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-70)	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-60)	V
Emitter-to-Base Voltage	$V_{EBO}$		(-5)	V
Collector Current	$I_C$		(-3)	A
Collector Current (Pulse)	$I_{CP}$		(-5)	A
Collector Dissipation	$P_C$		1.75	W
		$T_c=25^\circ\text{C}$	20	W
Junction Temperature	$T_J$		125	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +125	$^\circ\text{C}$

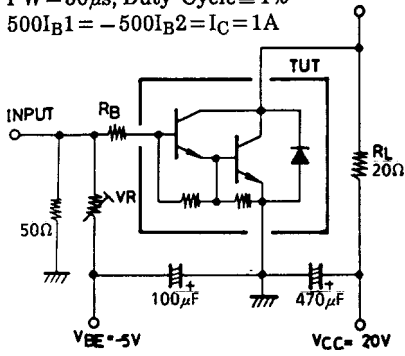
##### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)40\text{V}$ , $I_E = 0$			(-0.1)	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)5\text{V}$ , $I_C = 0$			(-3)	mA
DC Current Gain	$h_{FE}$	$V_{CE} = (-)2\text{V}$ , $I_C = (-)1.5\text{A}$	2000	5000		
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)5\text{V}$ , $I_C = (-)1.5\text{A}$		200		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)1.5\text{A}$ , $I_B = (-)3\text{mA}$		(-1.0) 0.9	(-1.5)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)1.5\text{A}$ , $I_B = (-)3\text{mA}$			(-2.0)	V
Collector-to-Base Saturation Voltage	$V_{(BR)CBO}$	$I_C = (-)5\text{mA}$ , $I_E = 0$	(-70)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)50\text{mA}$ , $R_{BE} = \infty$	(-60)			V
Rise Time	$t_{on}$	See specified Test Circuit		0.3		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified Test Circuit		(1.3) 1.2		$\mu\text{s}$
Fall Time	$t_f$	See specified Test Circuit		0.2		$\mu\text{s}$

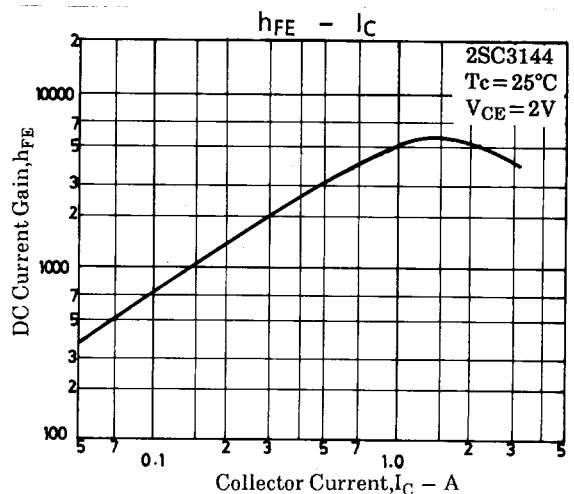
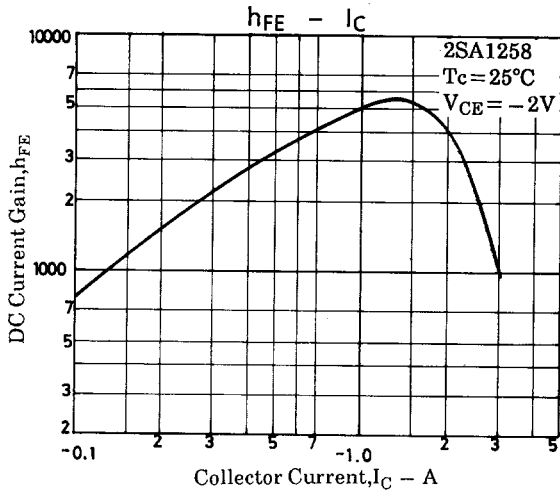
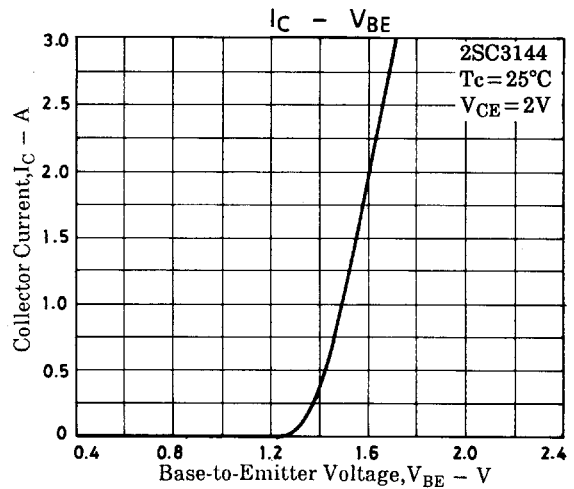
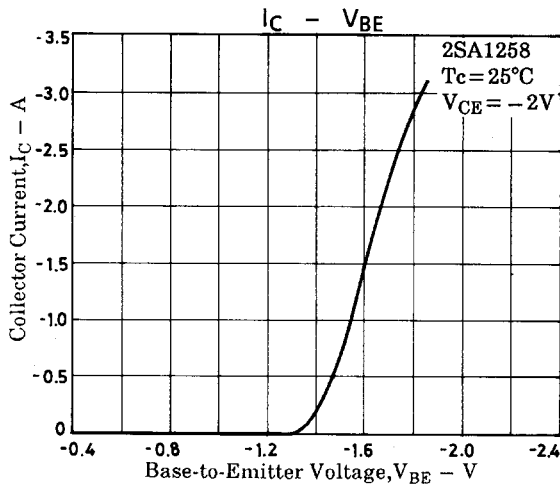
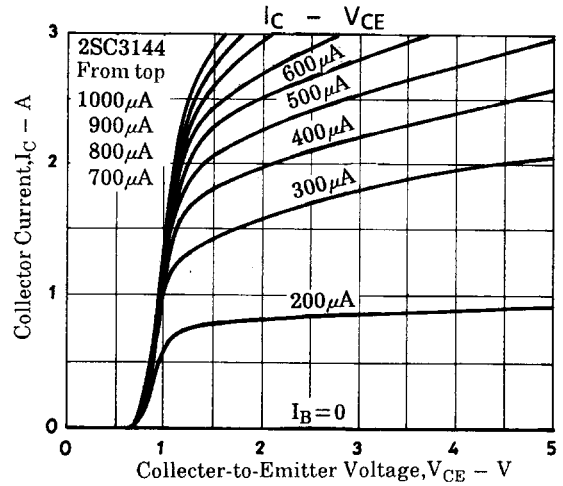
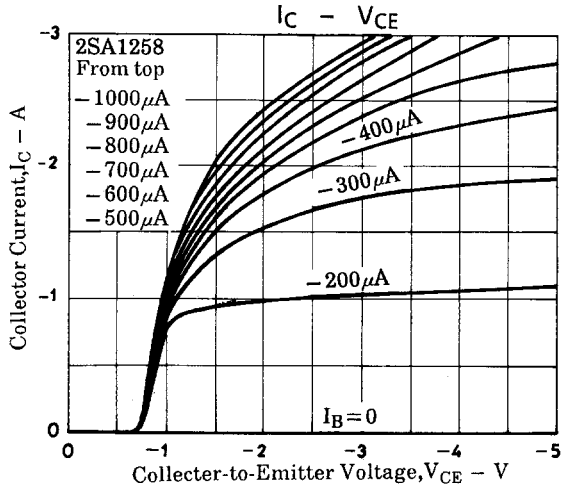
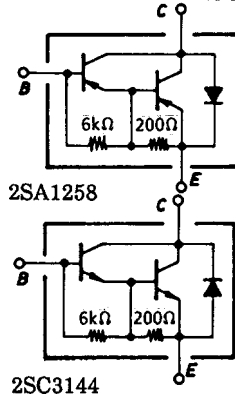
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## Specified Test Circuit (for PNP, the polarity is reversed)

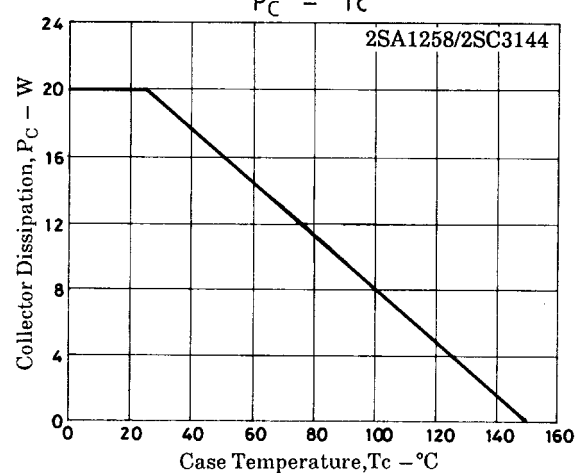
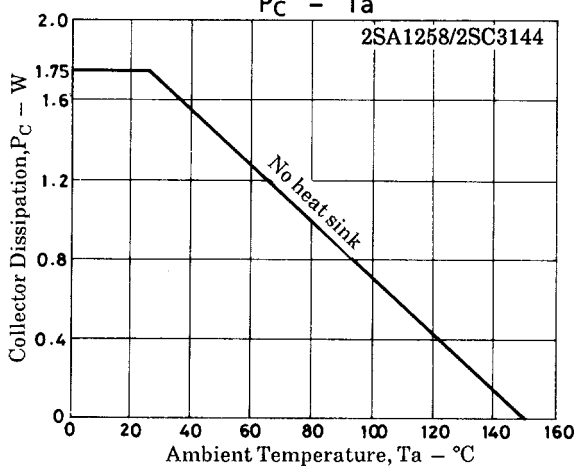
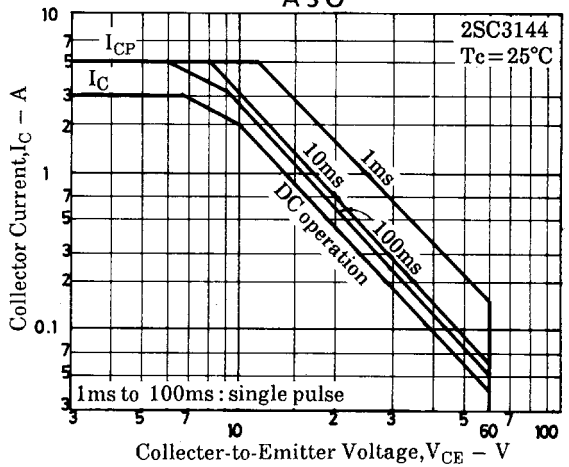
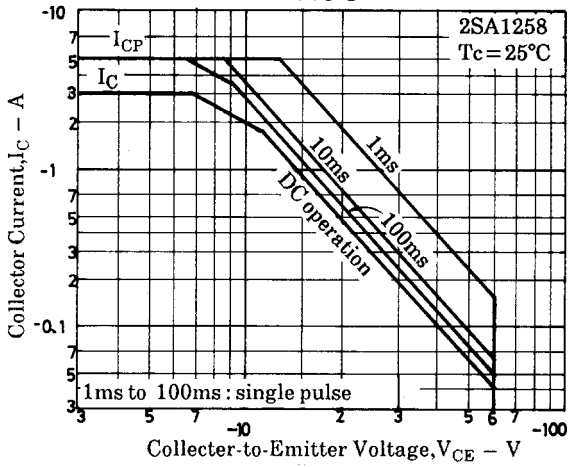
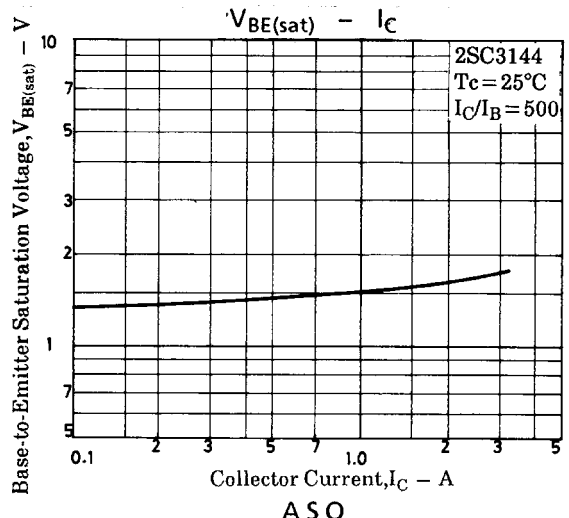
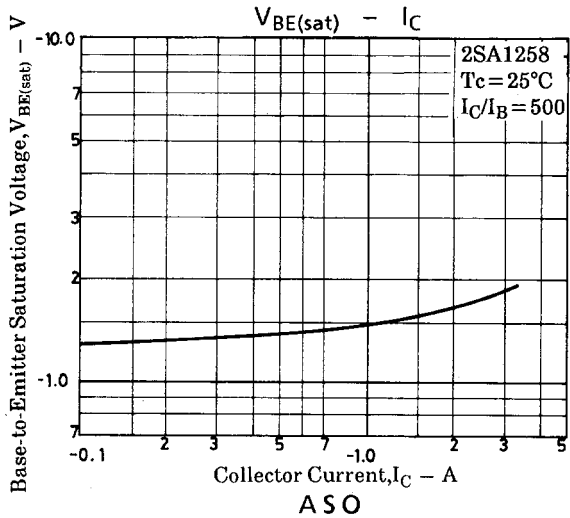
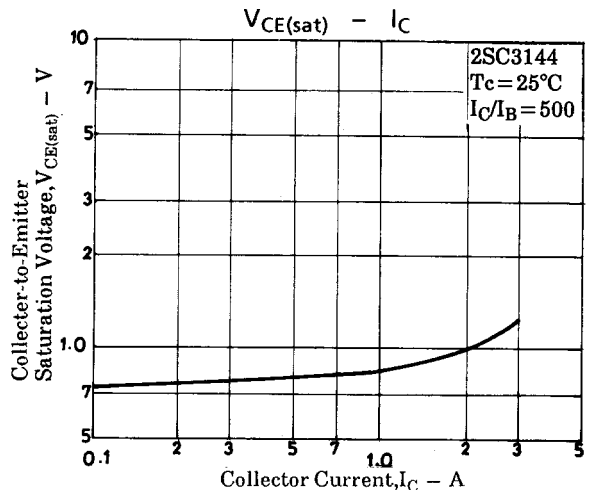
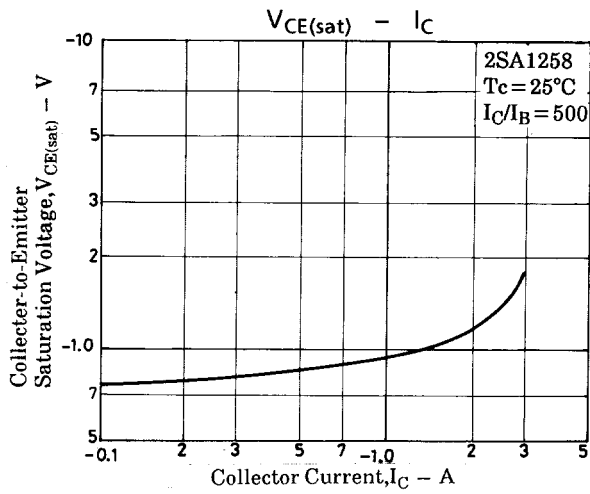
PW = 50  $\mu$ s, Duty Cycle  $\leq$  1%  
 $500I_{B1} = -500I_{B2} = I_C = 1A$



## Electrical Connection



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