



## 2SA1257/2SC3143

### High-Voltage Switching, AF Power Amp, 100W Output Predriver Applications

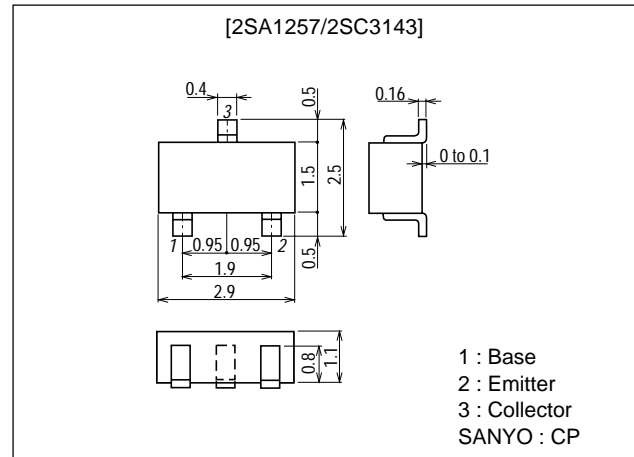
#### Features

- Very small-sized package permitting the 2SA1257/2SC3143-applied sets to be made small and slim.
- High breakdown voltage ( $V_{CEO} \geq 160V$ ).
- Small output capacitance.

#### Package Dimensions

unit:mm

2018B



() : 2SA1257

#### Specifications

Absolute Maximum Ratings at  $T_a = 25^\circ C$ 

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)180	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)160	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)5	V
Collector Current	$I_C$		(-)80	mA
Collector Current Pulse	$I_{CP}$		(-)150	mA
Collector Dissipation	$P_C$		200	mW
Junction Temperature	$T_J$		125	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +125	$^\circ C$

Electrical Characteristics at  $T_a = 25^\circ C$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)120V, I_E = 0$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = (-)5V, I_C = (-)10mA$	60*		270*	

\* : The 2SA1257/2SC3143 are classified by 10mA  $h_{FE}$  as follows :

Continued on next page.

Marking 2SA1257 : G, 2SC3143 : K,  $h_{FE}$  rank : 3, 4, 5

Rank	G3	G4	G5	2SA1257
$h_{FE}$	60 to 120	90 to 180	135 to 270	

Rank	K3	K4	K5	2SC3143
$h_{FE}$	60 to 120	90 to 180	135 to 270	

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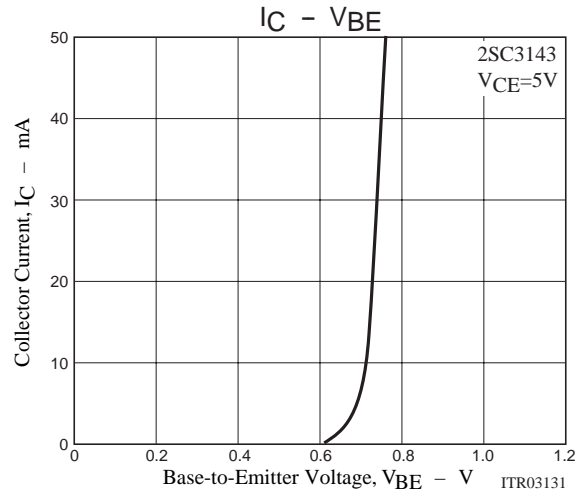
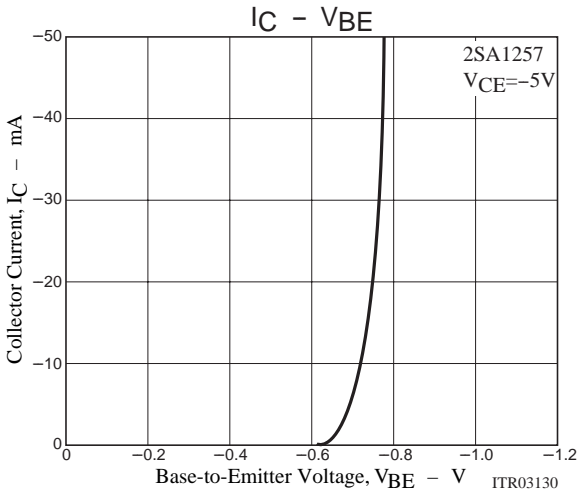
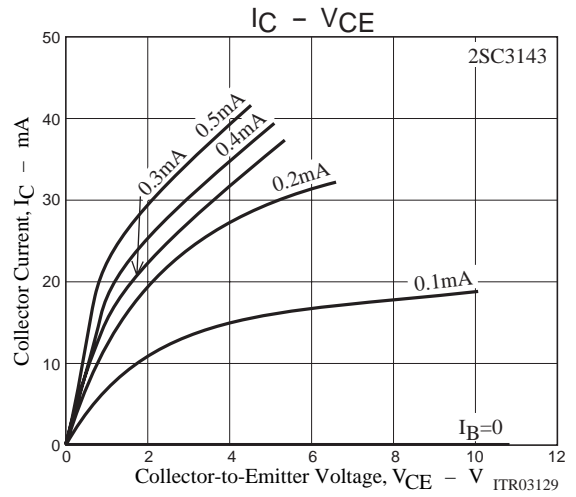
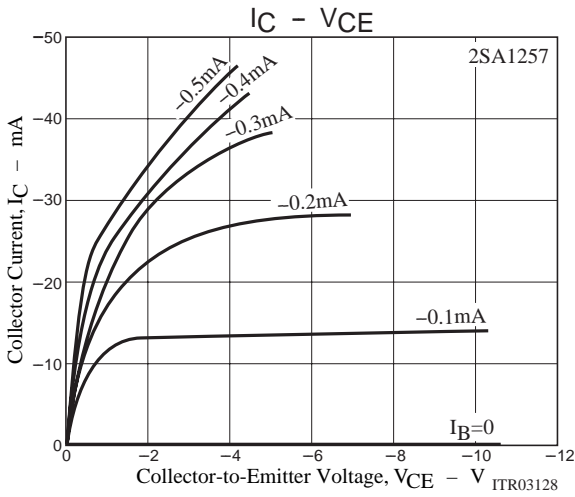
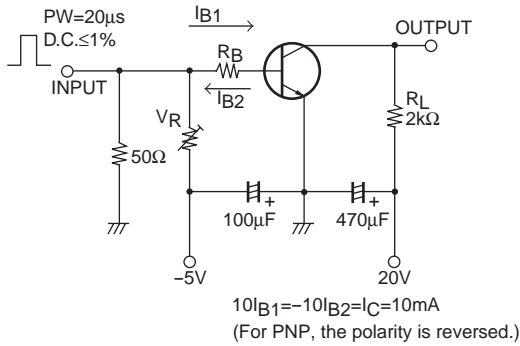
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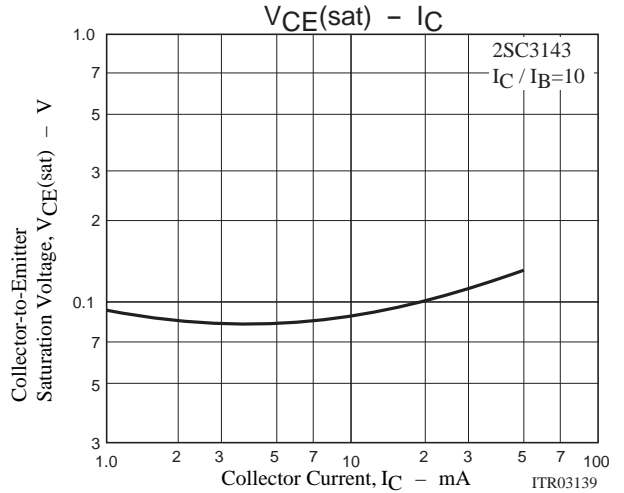
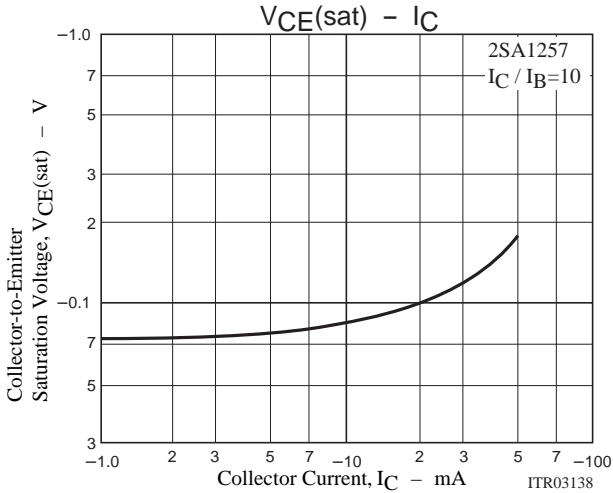
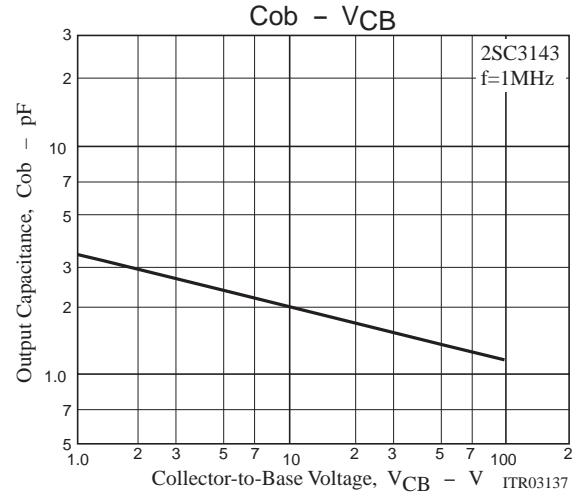
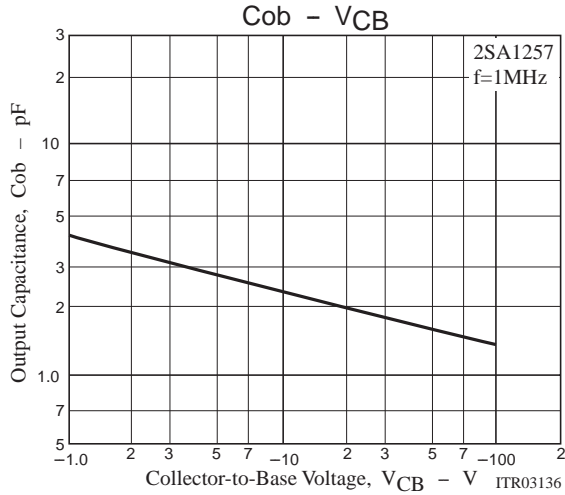
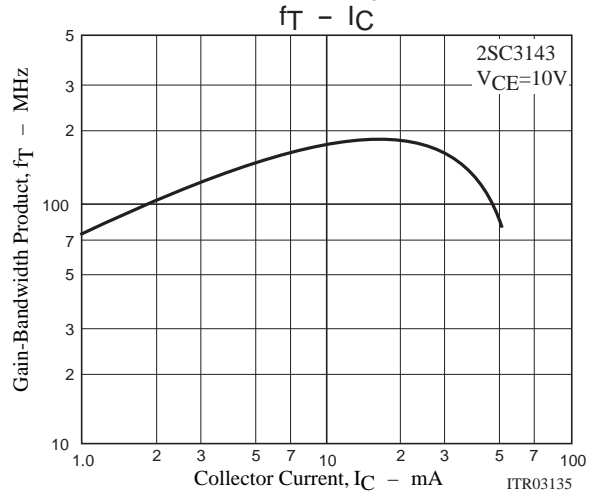
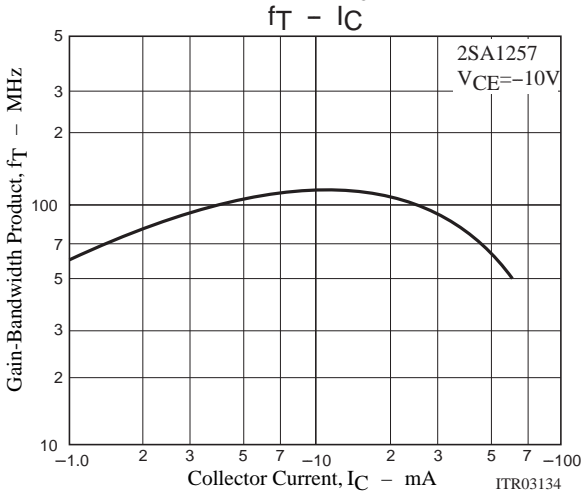
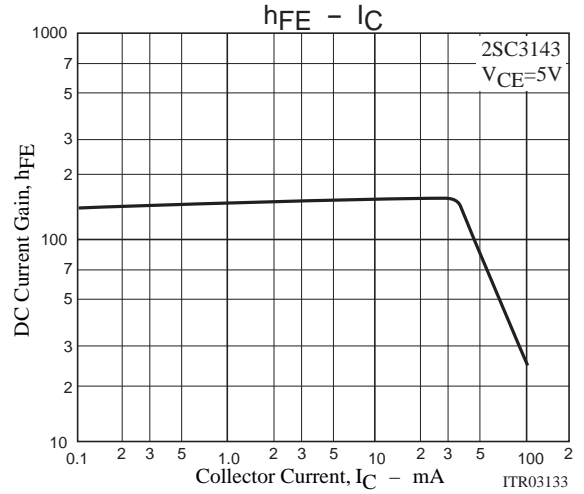
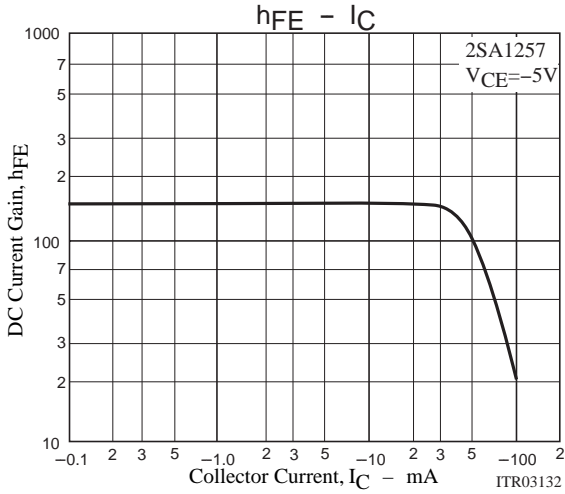
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10V, I_C=(-)10mA$		(130) 150		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		(2.4) 2.0	(3.2) 2.8	pF
Base-to-Emitter Voltage	$V_{BE}$	$V_{CE}=(-)5V, I_C=(-)10mA$			(-1.5)	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)30mA, I_B=(-)3mA$			(-0.7)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-180)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-160)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-5)			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(0.15) 0.18		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		(0.95) 1.00		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		(0.15) 0.20		$\mu s$

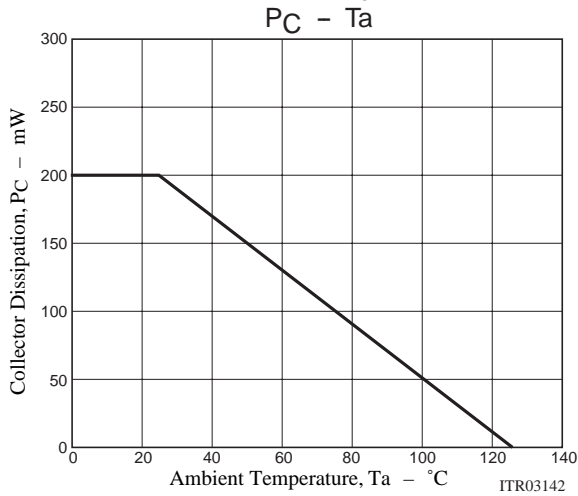
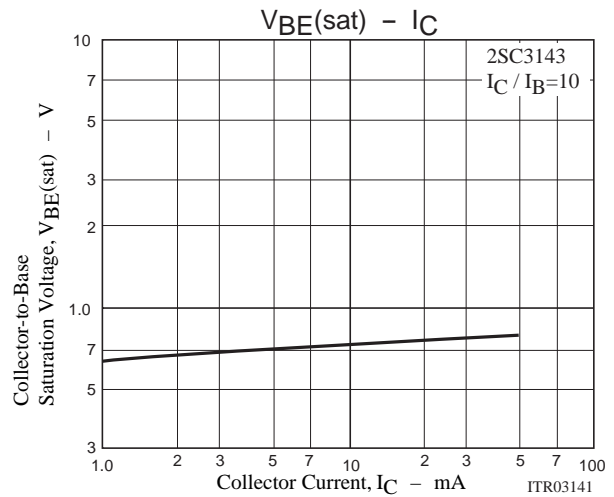
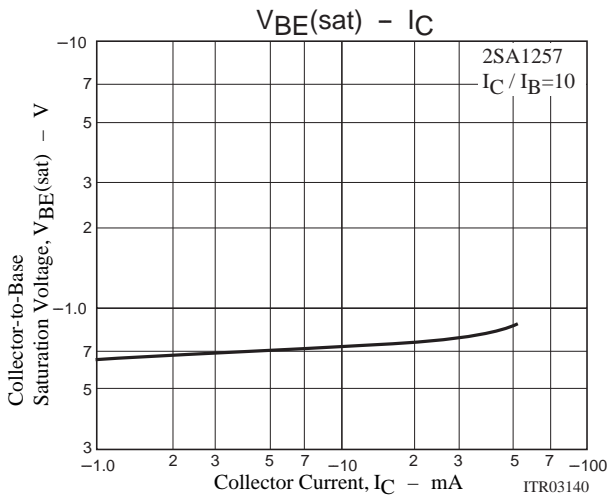
## Switching Time Test Circuit



# 2SA1257/2SC3143



## 2SA1257/2SC3143



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