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PNP/NPN Epitaxial Planar Silicon Transistors

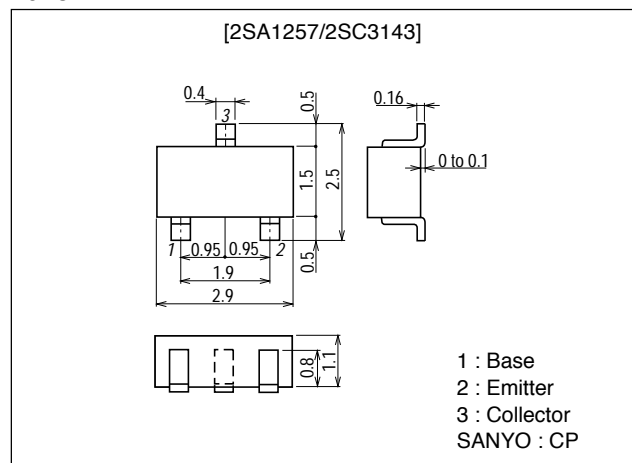
2SA1257/2SC3143 — High-Voltage Switching, AF Power Amp, 100W Output Predriver Applications

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	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	μA
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
h_{FE}	60 to 120	90 to 180	135 to 270

2SA1257

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

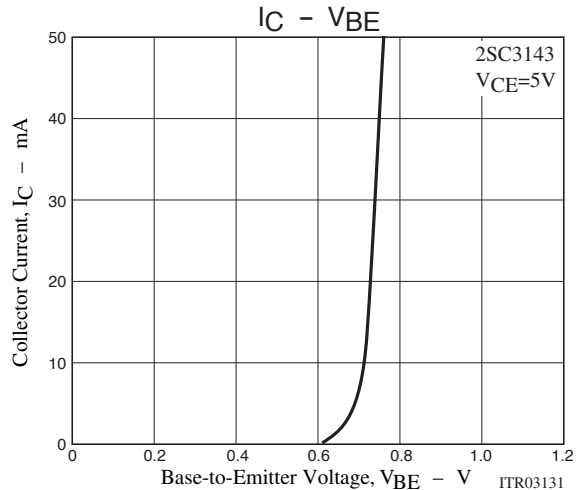
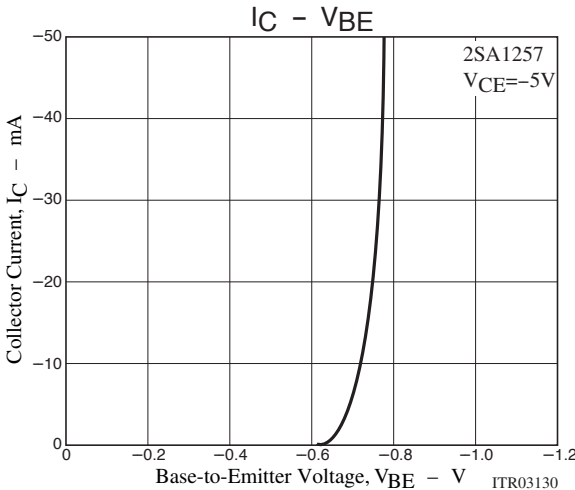
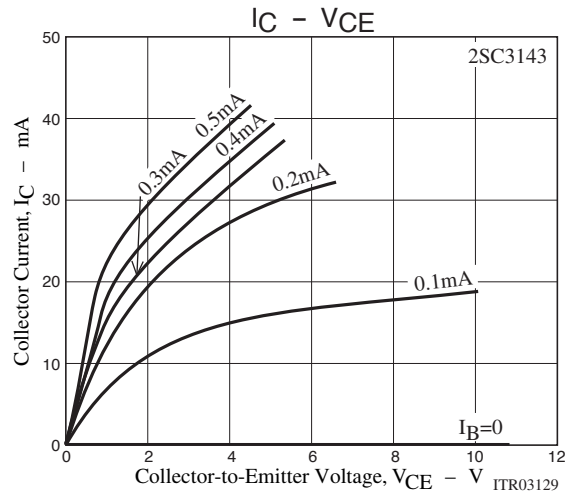
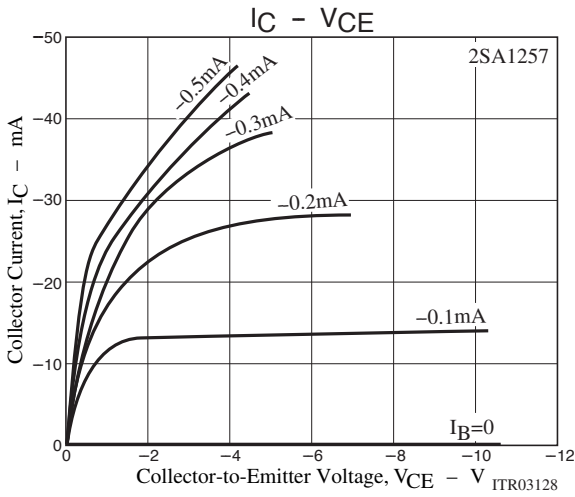
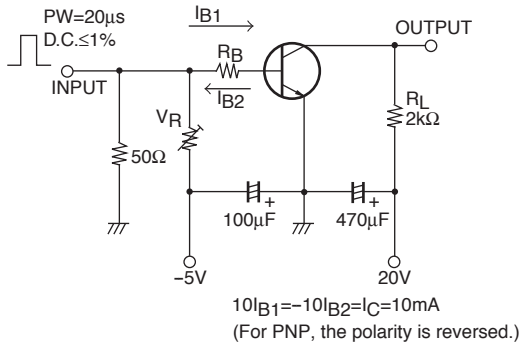
2SC3143

2SA1257/2SC3143

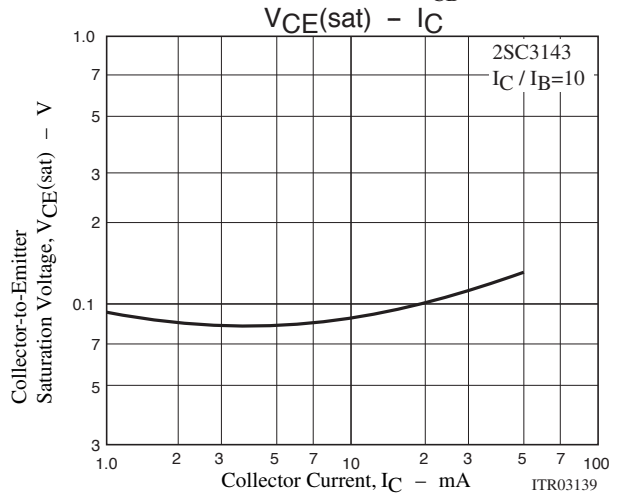
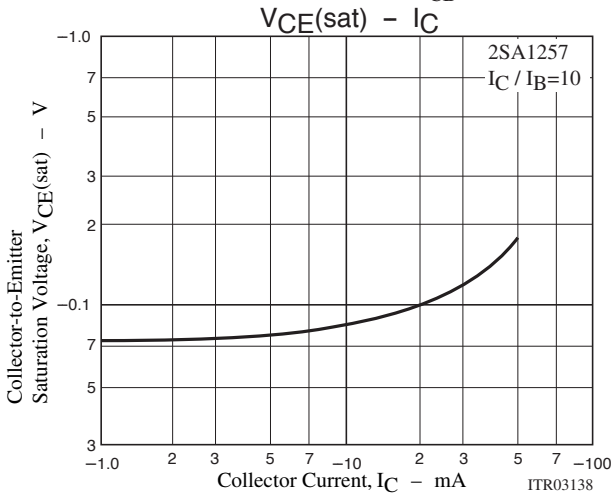
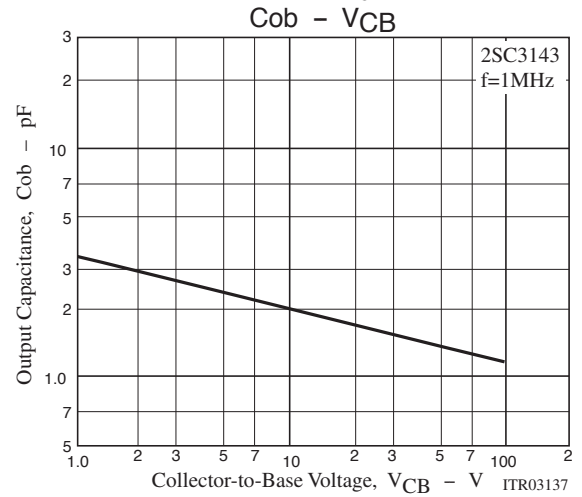
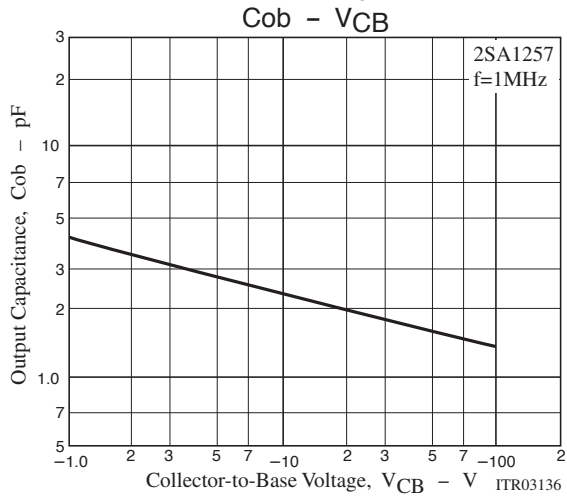
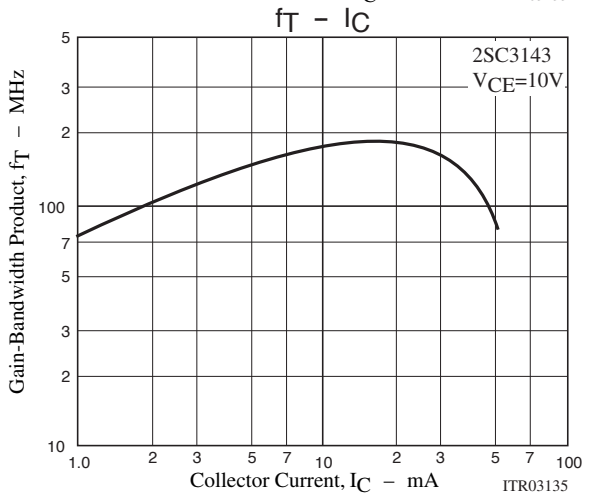
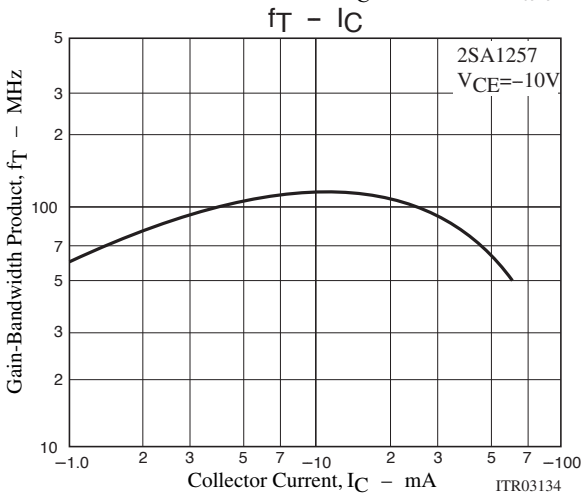
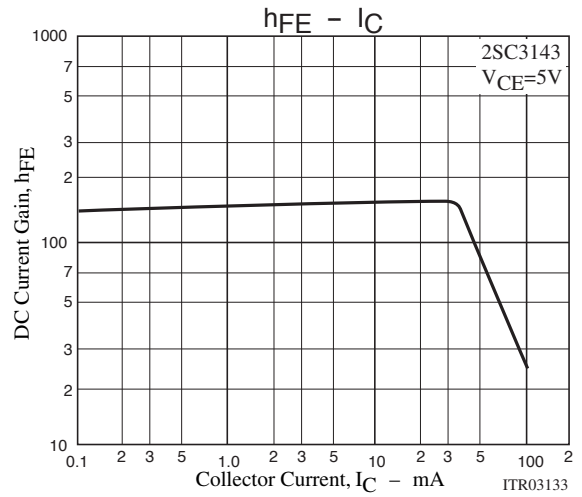
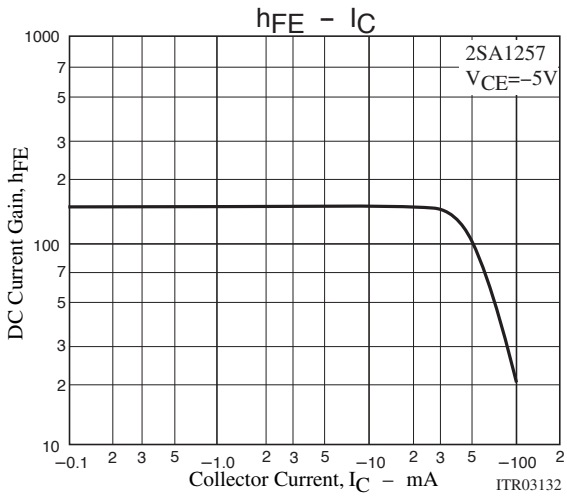
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)10mA$		(130) 150		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(2.4) 2.0	(3.2) 2.8	pF
Base-to-Emitter Voltage	V_{BE}	$V_{CE}=(-)5V, I_C=(-)10mA$			(-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		μs
Storage Time	t_{stg}	See specified Test Circuit		(0.95) 1.00		μs
Fall Time	t_f	See specified Test Circuit		(0.15) 0.20		μs

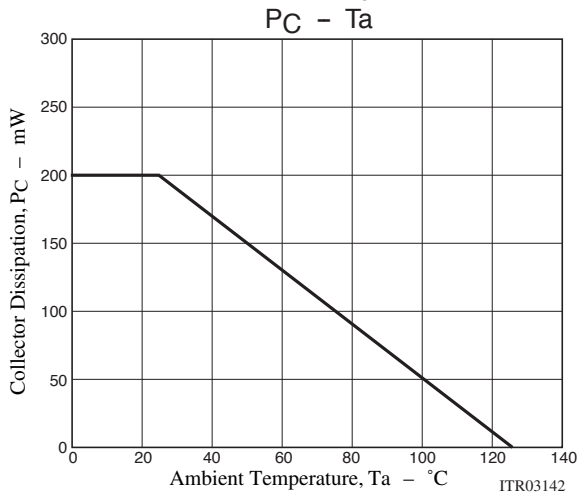
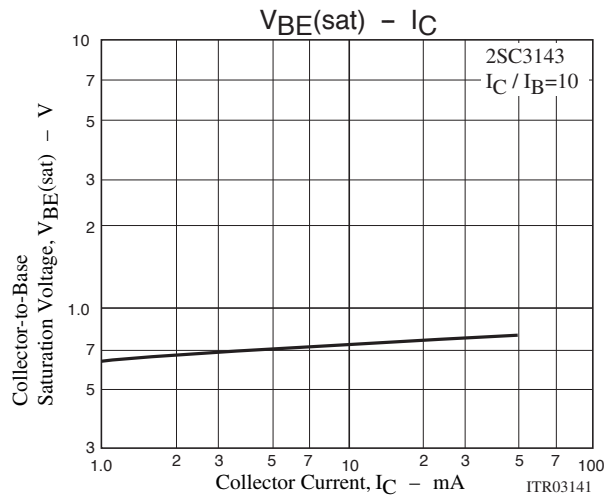
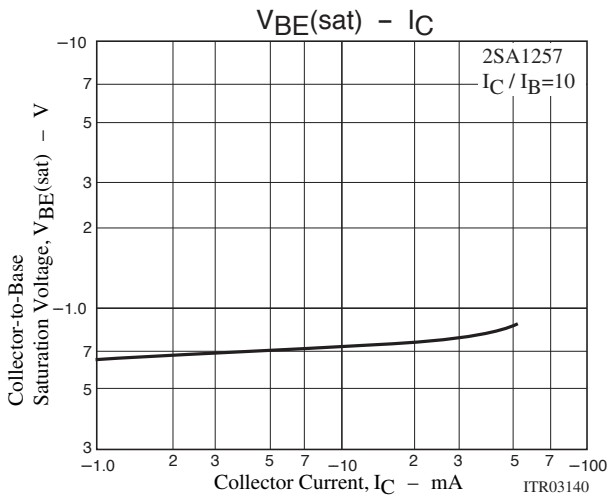
Switching Time Test Circuit



2SA1257/2SC3143



2SA1257/2SC3143



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