T-27-09

2SA1257, 2SC3143

2018A

PNP/NPN Epitaxial Planar Silicon Transistors

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 ($V_{CEO} \geqq 160V$)
- Small output capacitance

( ) : 2SA1257

Absolute Maximum Ratings at Ta = 25°C

			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
Peak Collector Current	i_{cp}	(−)150	mA
Collector Dissipation	P_C	200	mW
Junction Temperature	Tj	125	°C
Storage Temperature	Tstg	−55 to +125	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
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※	
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
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=(−)30mA, I_B=(−)3mA			(−)0.7	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=(−)10μA, I_E=0	(−)180			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=(−)1mA, R_{BE}=∞	(−)160			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(−)10μA, I_C=0	(−)5			V
Turn-on Time	t_{on}	See specified Test Circuit.		(0.15)0.18		μs
Storage Time	t_{stg}	〃		(0.95)1.00		μs
Fall Time	t_f	〃		(0.15)0.20		μs

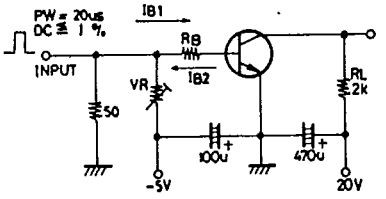
※ : The 2SA1257/2SC3143 are classified by 10mA h_{FE} as follows :

60 G3 120	90 G4 180	135 G5 270

Marking 2SA1257 : G
2SC3143 : K

h_{FE} rank : 3, 4,5,

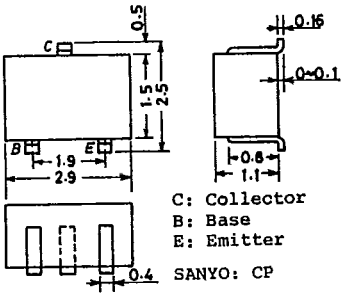
Switching Time Test Circuit



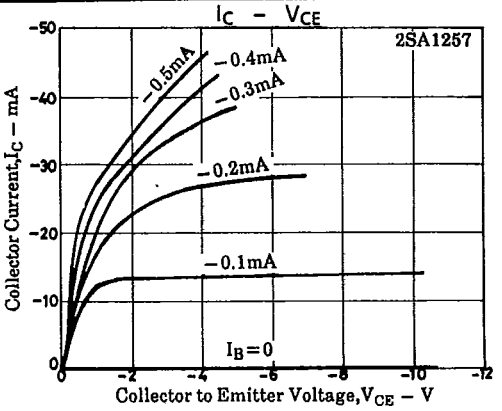
$10I_{B1} = -10I_{B2} = I_C = 10mA$

(For PNP, the polarity is reversed.)

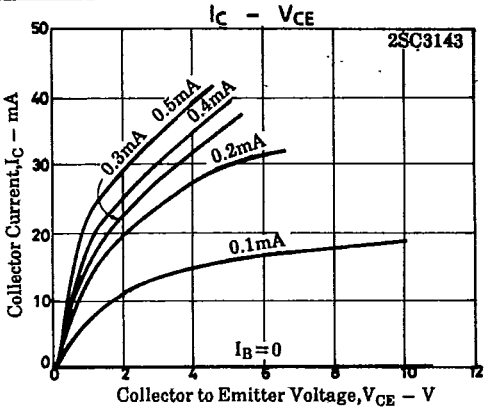
Case Outline 2018A
(unit : mm)



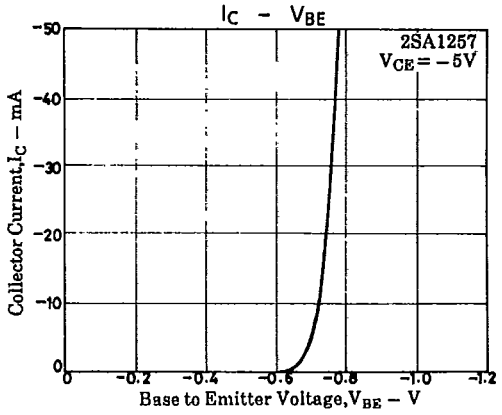
I_C – V_{CE}



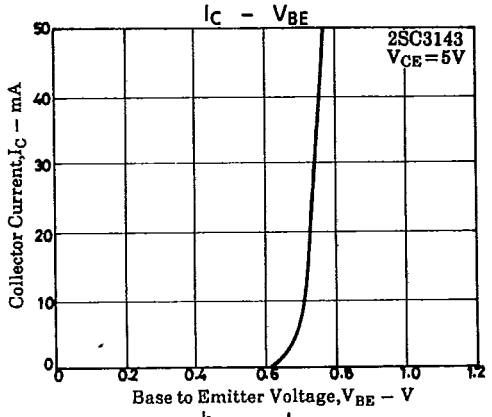
I_C – V_{CE}



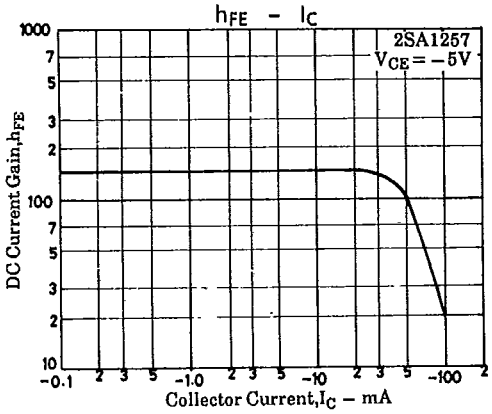
I_C – V_{BE}



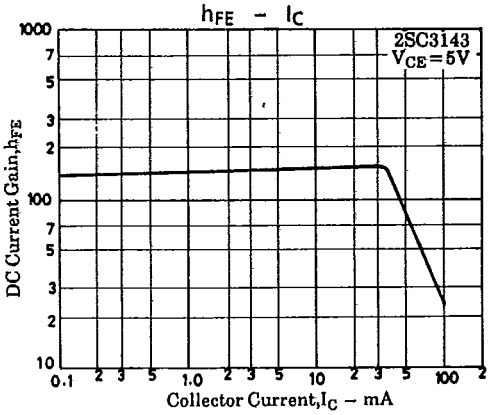
I_C – V_{BE}



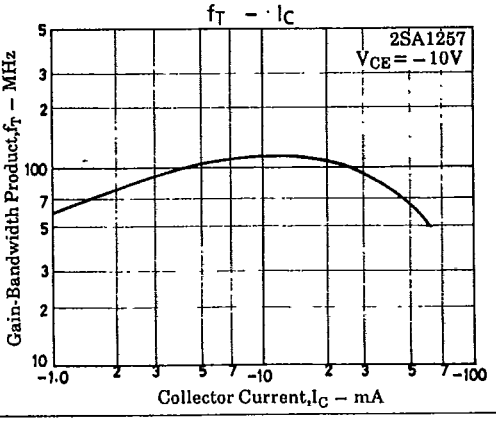
h_{FE} – I_C



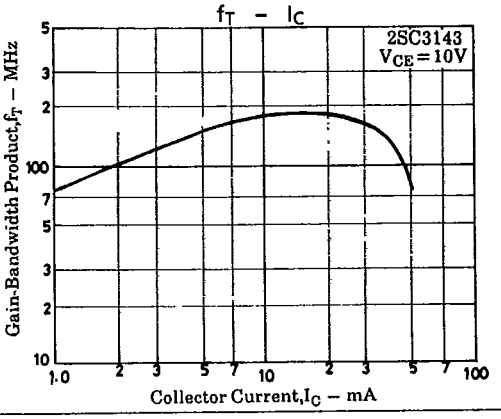
h_{FE} – I_C



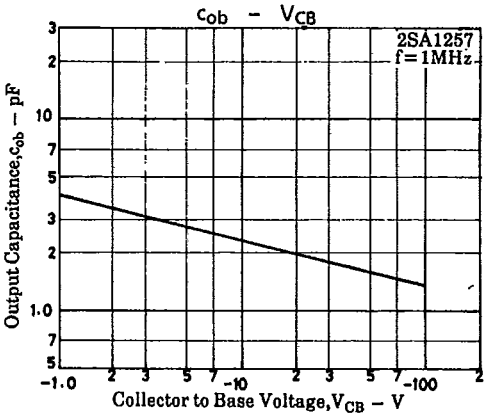
f_T – I_C



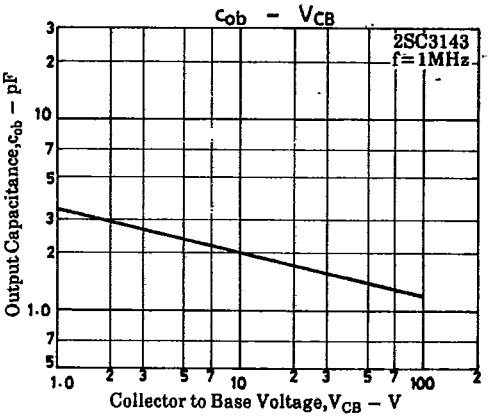
f_T – I_C



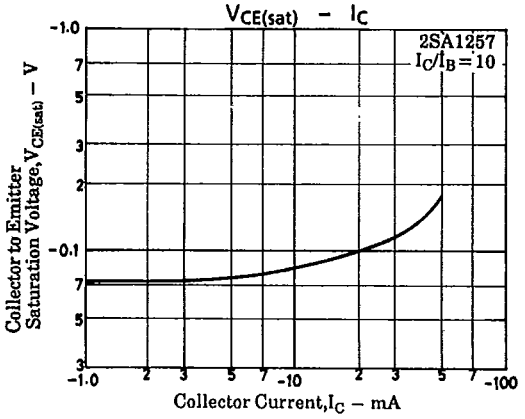
C_{ob} – V_{CB}



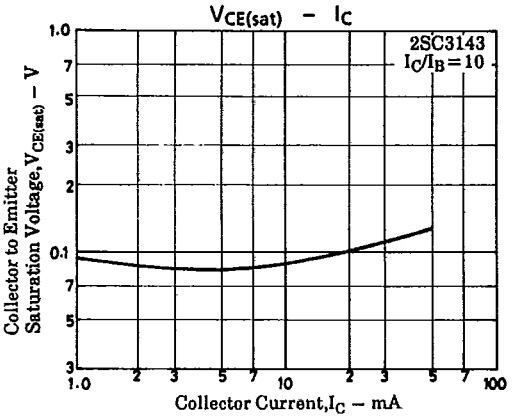
C_{ob} – V_{CB}



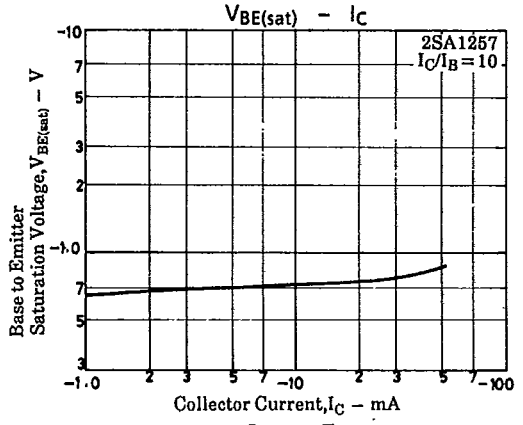
$V_{CE(sat)}$ – I_C



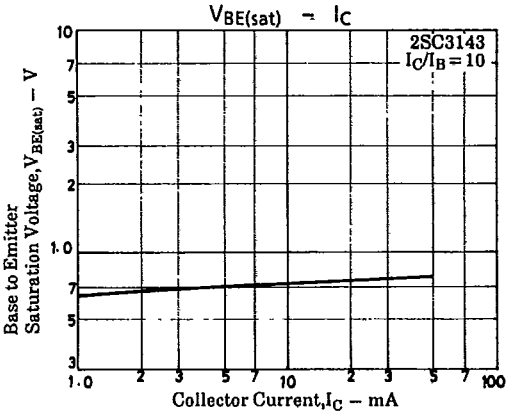
$V_{CE(sat)}$ – I_C



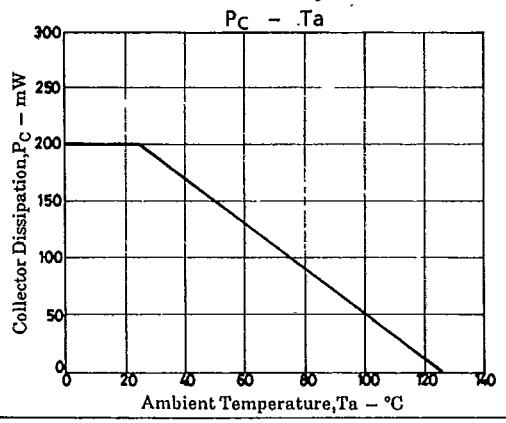
$V_{BE(sat)}$ – I_C



$V_{BE(sat)}$ – I_C



P_C – Ta



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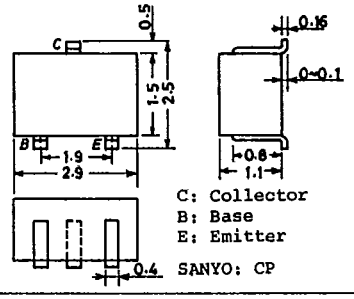
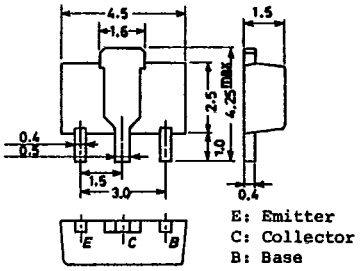
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- All of Sanyo surface mount transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

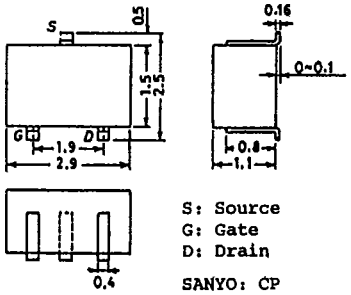
Case Outline—[2018A] unit: mm



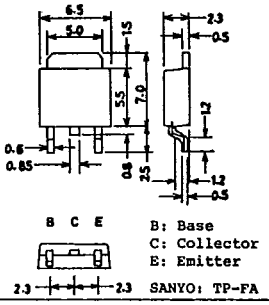
Case Outline—[2038] unit: mm



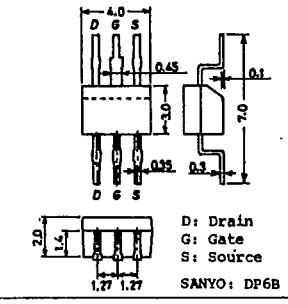
Case Outline—[2024A] unit: mm



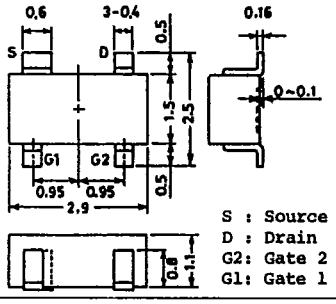
Case Outline—[2044] unit: mm



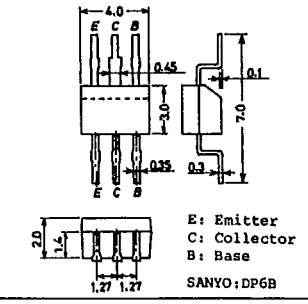
Case Outline—[2028A] unit: mm



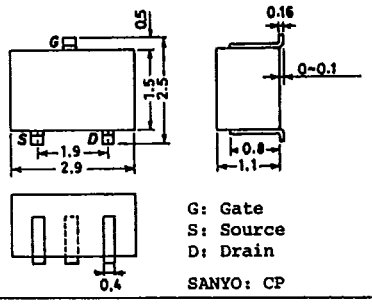
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm



Case Outline—[2050] unit: mm



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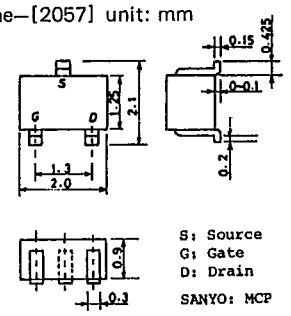
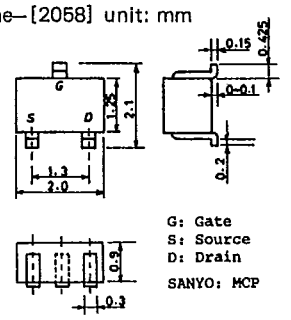
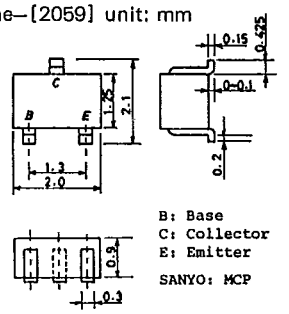
Case Outline—[2057] unit: mm



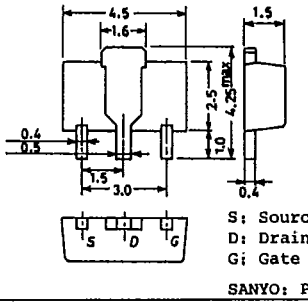
Case Outline—[2058] unit: mm



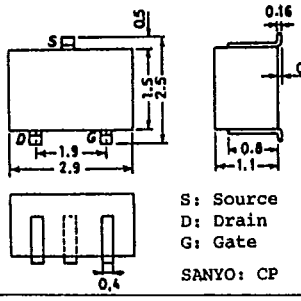
Case Outline—[2059] unit: mm



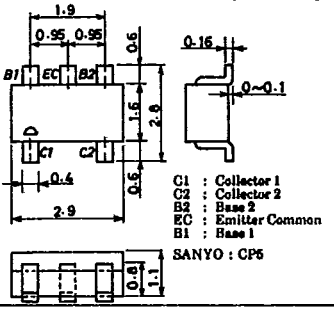
Case Outline—[2062] unit: mm



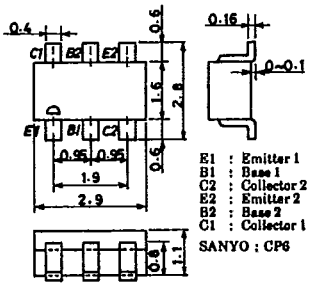
Case Outline—[2065] unit: mm



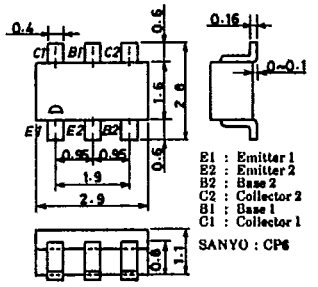
Case Outline—[2066] unit: mm



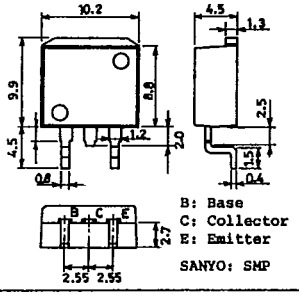
Case Outline—[2067] unit: mm



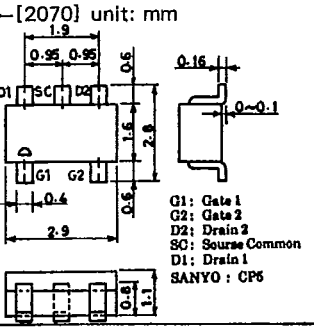
Case Outline—[2068] unit: mm



Case Outline—[2069] unit: mm



Case Outline—[2070] unit: mm



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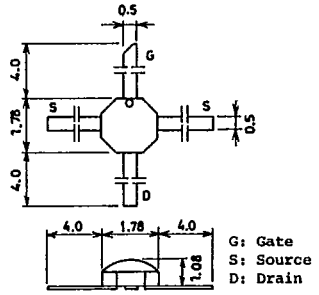
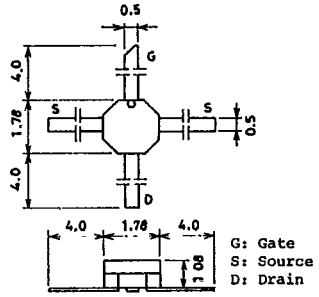
Case Outline—[2071] unit: mm



Case Outline—[2072] unit: mm



Case Outline—[2073] unit: mm