

**Silicon NPN-PNP Power Transistor**

**2SC4131/2SA1746**

**DESCRIPTION**

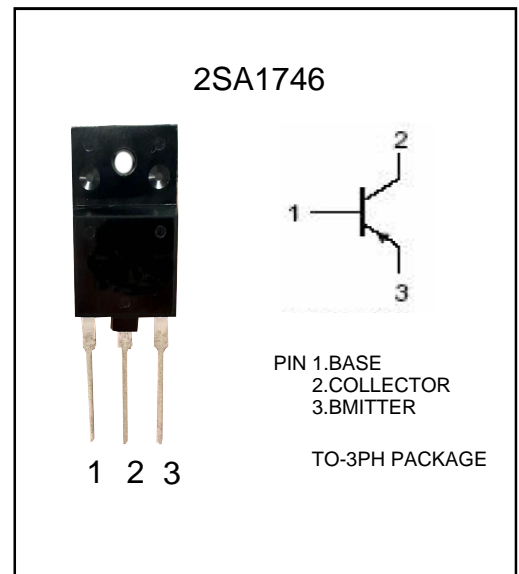
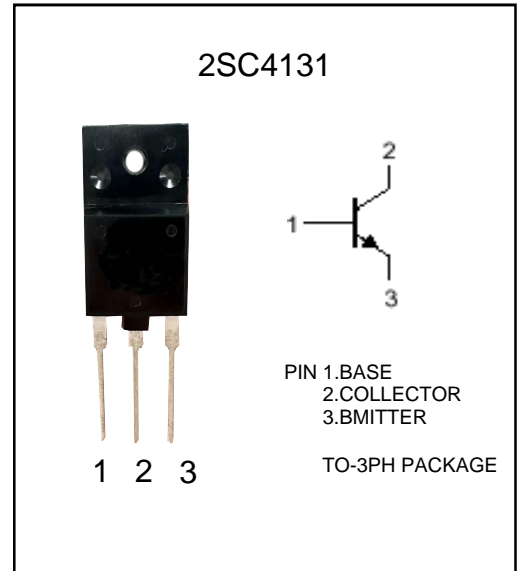
- Low Collector Saturation Voltage  
:  $V_{CE(sat)} = -0.5(V)(Max) @ I_C = -5A$
- Good Linearity of  $h_{FE}$

**APPLICATIONS**

- Designed for chopper regulator, switch and general purpose applications

**ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}C$ )**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	-70	V
$V_{CEO}$	Collector-Emitter Voltage	-50	V
$V_{EBO}$	Emitter-Base Voltage	-6	V
$I_C$	Collector Current-Continuous	-12	A
$I_{CM}$	Collector Current-Peak	-20	A
$I_B$	Base Current-Continuous	-4	A
$P_C$	Collector Power Dissipation @ $T_c=25^{\circ}C$	60	W
$T_J$	Junction Temperature	150	$^{\circ}C$
$T_{stg}$	Storage Temperature Range	-55~150	$^{\circ}C$



## ELECTRICAL CHARACTERISTICS

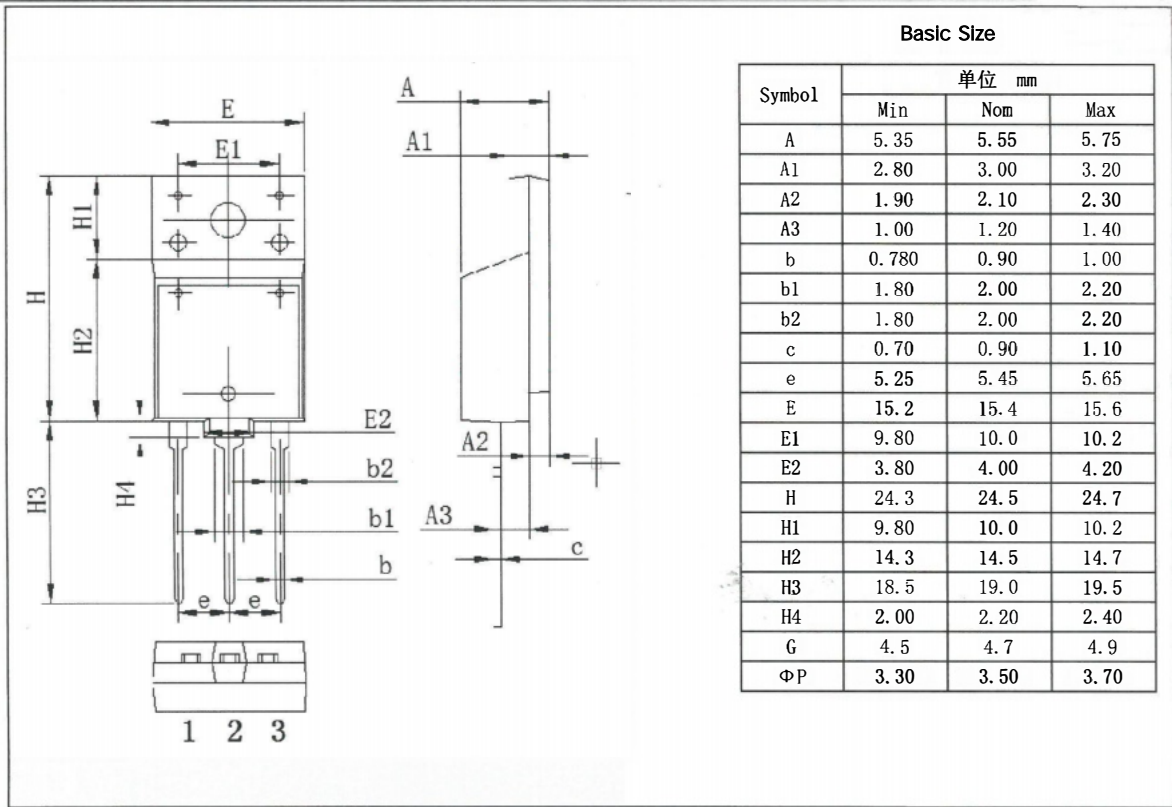
 $T_c=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -25\text{mA}$ ; $I_B = 0$	-50			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -5\text{A}$ ; $I_B = -80\text{mA}$			-0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -5\text{A}$ ; $I_B = -80\text{mA}$			-1.2	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = -70\text{V}$ ; $I_E = 0$			-10	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = -6\text{V}$ ; $I_C = 0$			-10	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$I_C = -5\text{A}$ ; $V_{CE} = -1\text{V}$	50			
$C_{OB}$	Output Capacitance	$I_E = 0$ ; $V_{CB} = -10\text{V}$ ; $f = 1.0\text{MHz}$		400		pF
$f_T$	Current-Gain—Bandwidth Product	$I_E = 1\text{A}$ ; $V_{CE} = -12\text{V}$		25		MHz

## Switching Times

$t_{on}$	Turn-on Time	$I_C = -5\text{A}$ , $R_L = 4\ \Omega$ , $I_{B1} = -I_{B2} = -80\text{mA}$ , $V_{CC} = -20\text{V}$		0.5		$\mu\text{s}$
$t_{stg}$	Storage Time			0.6		$\mu\text{s}$
$t_f$	Fall Time			0.3		$\mu\text{s}$

TO-3PH PACKAGE



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