

isc Silicon PNP Power Transistor

2SA1010

DESCRIPTION

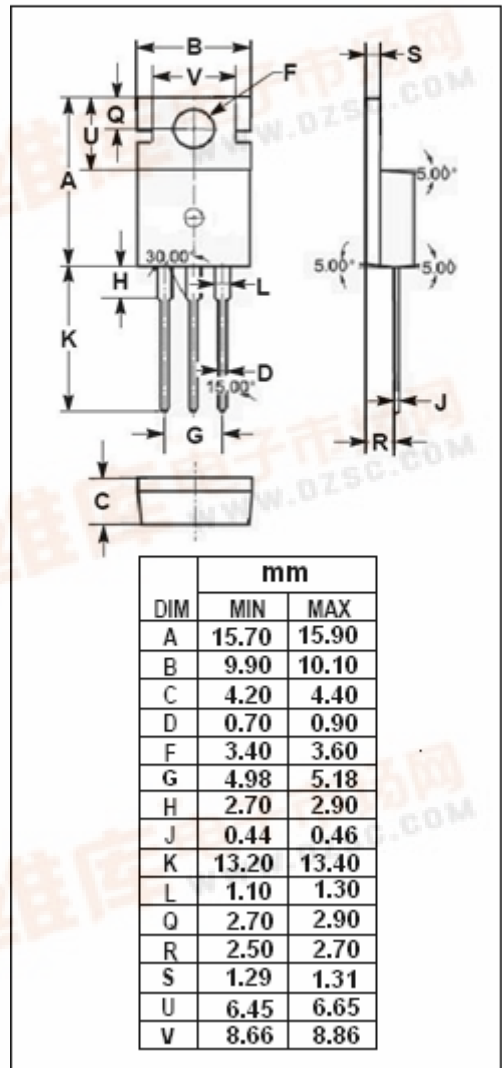
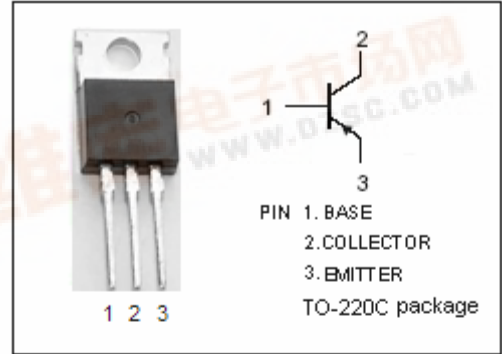
- Low Collector Saturation Voltage
- Fast Switching Speed
- Complement to Type 2SC2334

APPLICATIONS

- Developed for high-voltage high-speed switching, and is ideal for use as a driver in devices such as switching regulators, DC/DC converters, and high frequency power amplifiers.

ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CBO</sub>	Collector-Base Voltage	-100	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-100	V
V <sub>EBO</sub>	Emitter-Base Voltage	-7.0	V
I <sub>C</sub>	Collector Current-Continuous	-7.0	A
I <sub>CM</sub>	Collector Current-Peak	-15	A
I <sub>B</sub>	Base Current-Continuous	-3.5	A
P <sub>C</sub>	Collector Power Dissipation @ T <sub>a</sub> =25°C	1.5	W
	Total Power Dissipation @ T <sub>C</sub> =25°C	40	
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-55~150	°C



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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = -5.0A$ ; $I_B = -0.5A$ , $L=1mH$	-100		V
$V_{CEX(SUS)-1}$	Collector-Emitter Sustaining Voltage	$I_C = -5.0A$ ; $I_{B1} = -I_{B2} = -0.5A$ , $V_{BE(OFF)} = 5.0V$ , $L=180\mu H$ , clamped	-100		V
$V_{CEX(SUS)-2}$	Collector-Emitter Sustaining Voltage	$I_C = -10A$ ; $I_{B1} = -1.0A$ ; $I_{B2} = -0.5A$ , $V_{BE(OFF)} = 5.0V$ , $L=180\mu H$ , clamped	-100		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -5.0A$ ; $I_B = -0.5A$		-0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -5.0A$ ; $I_B = -0.5A$		-1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = -100V$ ; $I_E = 0$		-10	$\mu A$
$I_{CER}$	Collector Cutoff Current	$V_{CE} = -100V$ ; $R_{BE} = 51\Omega$ , $T_a = 125^\circ\text{C}$		-1.0	mA
$I_{CEX}$	Collector Cutoff Current	$V_{CE} = -100V$ ; $V_{BE(off)} = -1.5V$ $V_{CE} = -100V$ ; $V_{BE(off)} = -1.5V$ , $T_a = 125^\circ\text{C}$		-10 -1.0	$\mu A$ mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = -5V$ ; $I_C = 0$		-10	$\mu A$
$h_{FE-1}$	DC Current Gain	$I_C = -0.5A$ ; $V_{CE} = -5V$	40	200	
$h_{FE-2}$	DC Current Gain	$I_C = -3.0A$ ; $V_{CE} = -5V$	40	200	
$h_{FE-3}$	DC Current Gain	$I_C = -5.0A$ ; $V_{CE} = -5V$	20		

## Switching times

$t_{on}$	Turn-on Time	$I_C = -5.0A$ , $R_L = 10\Omega$ , $I_{B1} = -I_{B2} = -0.5A$ , $V_{CC} \approx -50V$		0.5	$\mu s$
$t_{stg}$	Storage Time			1.5	$\mu s$
$t_f$	Fall Time			0.5	$\mu s$

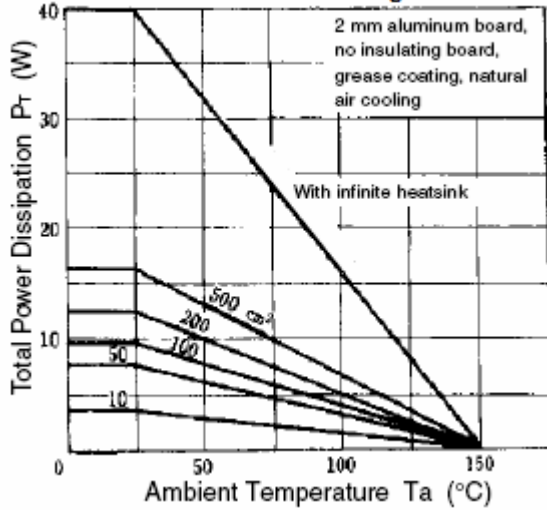
◆  $h_{FE-2}$  Classifications

M	L	K
40-80	60-120	100-200

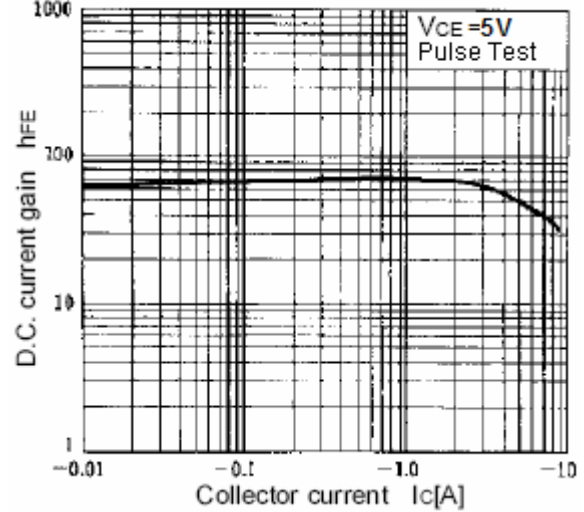
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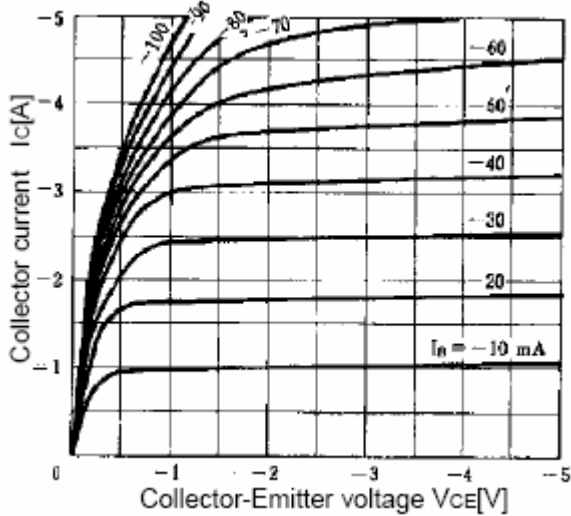
Power Derating



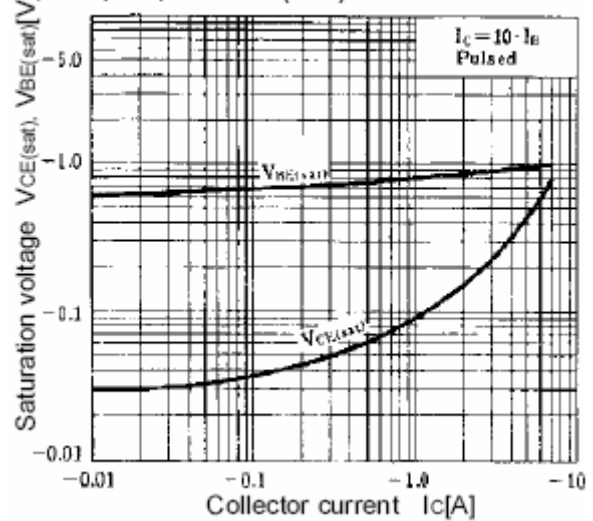
$h_{FE}$ - $I_C$  Characteristics



$I_C$ - $V_{CE}$  Characteristics



$V_{CE(sat)}$ - $I_C$  &  $V_{BE(sat)}$ - $I_C$  Characteristics



Safe Operating Area

