

isc Silicon PNP Power Transistor

2SA1646

DESCRIPTION

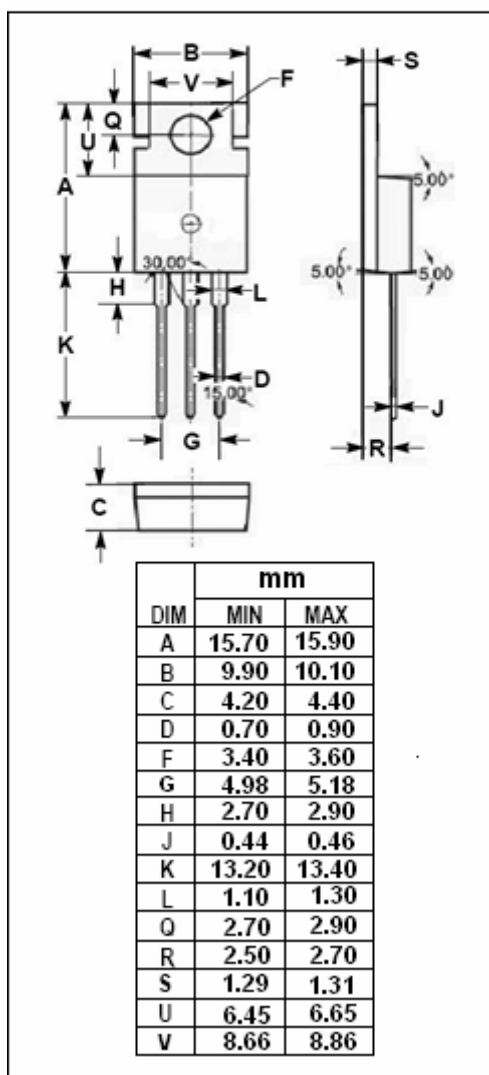
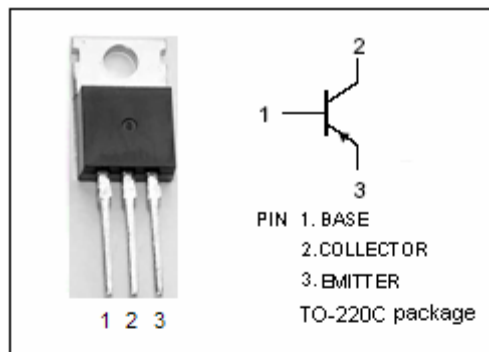
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = -100V(\text{Min})$
- Fast Switching Speed
- Low Saturation Voltage-  
:  $V_{CE(sat)} = -0.3V(\text{Max}) @ I_C = -6A$

APPLICATIONS

- This type of power transistor is developed for high-speed switching and features a very low  $V_{CE(sat)}$ , is ideal for use in switching power supplies, DC/DC converters, motor drivers, solenoid drivers, and other low-voltage power supply devices, as well as for high current switching.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	-150	V
$V_{CEO}$	Collector-Emitter Voltage	-100	V
$V_{EBO}$	Emitter-Base Voltage	-7.0	V
$I_C$	Collector Current-Continuous	-10	A
$I_{CM}$	Collector Current-Pulse	-20	A
$I_B$	Base Current-Continuous	-6	A
$P_T$	Total Power Dissipation @ $T_C=25^\circ\text{C}$	40	W
	Total Power Dissipation @ $T_a=25^\circ\text{C}$	1.5	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55~150	$^\circ\text{C}$



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## ELECTRICAL CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -6A; I <sub>B</sub> = -0.3A			-0.3	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -8A; I <sub>B</sub> = -0.4A			-0.5	V
V <sub>BE(sat)-1</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -6A; I <sub>B</sub> = -0.3A			-1.2	V
V <sub>BE(sat)-2</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -8A; I <sub>B</sub> = -0.4A			-1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = -100V ; I <sub>E</sub> = 0			-10	μ A
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = -5V; I <sub>C</sub> = 0			-10	μ A
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = -0.5A ; V <sub>CE</sub> = -2V	100			
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = -2A ; V <sub>CE</sub> = -2V	100		400	
h <sub>FE-3</sub>	DC Current Gain	I <sub>C</sub> = -6A ; V <sub>CE</sub> = -2V	60			
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> =0; V <sub>CB</sub> = -10V; f <sub>test</sub> = 1.0MHz		250		pF
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = -0.5A ; V <sub>CE</sub> = -10V		150		MHz

## Switching times

t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = -6A ,R <sub>L</sub> = 8.3Ω , I <sub>B1</sub> = -I <sub>B2</sub> = -0.3A, V <sub>CC</sub> = -50V		0.3		μ s
t <sub>stg</sub>	Storage Time			1.5		μ s
t <sub>f</sub>	Fall Time			0.4		μ s

◆ h<sub>FE-2</sub> Classifications

M	L	K
100-200	150-300	200-400