

isc Silicon NPN Power Transistor

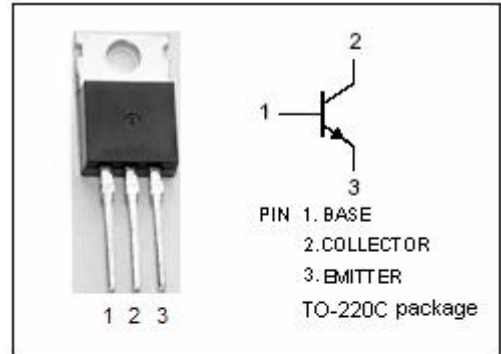
2SC2331

DESCRIPTION

- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 0.6V(\text{Max.}) @ I_C = 1A$
- Fast Switching Speed
- Complement to Type 2SA1008

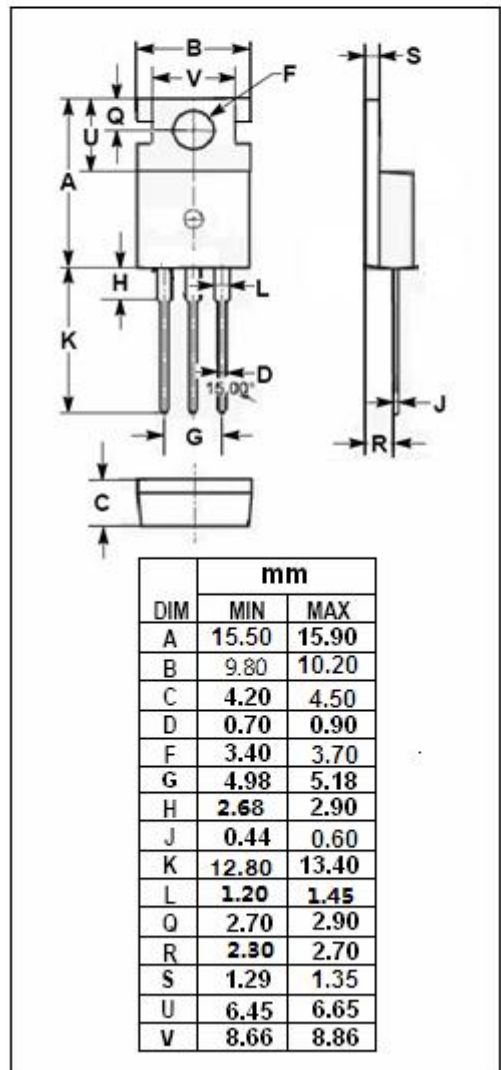
APPLICATIONS

- Designed for use as a driver in devices such as switching regulators, DC/DC converters, and high-frequency power amplifiers.



ABSOLUTE MAXIMUM RATINGS(Ta=25°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	2.0	A
I_{CM}	Collector Current-Peak	4.0	A
I_B	Base Current-Continuous	1.0	A
P_C	Collector Power Dissipation@ $T_a=25^\circ C$	1.5	W
	Collector Power Dissipation@ $T_c=25^\circ C$	15	
T_J	Junction Temperature	150	°C
T_{stg}	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	$I_C=50\text{mA}; I_B=0$	100		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=0.1\text{A}$		0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=0.1\text{A}$		1.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=100\text{V}; I_E=0$		10	μA
I_{CER}	Collector Cutoff Current	$V_{CE}=100\text{V}; R_{BE}=51\Omega, T_a=125^\circ\text{C}$		1.0	mA
I_{CEX}	Collector Cutoff Current	$V_{CE}=100\text{V}; V_{BE(off)}=-1.5\text{V}$ $V_{CE}=100\text{V}; V_{BE(off)}=-1.5\text{V}, T_a=125^\circ\text{C}$		10 1.0	μA mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5.0\text{V}; I_C=0$		10	μA
h_{FE-1}	DC Current Gain	$I_C=0.1\text{A}; V_{CE}=5\text{V}$	40		
h_{FE-2}	DC Current Gain	$I_C=1.0\text{A}; V_{CE}=5\text{V}$	40	200	
f_T	Current-Gain—Bandwidth Product	$I_C=0.1\text{A}; V_{CE}=10\text{V}$		100	MHz
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1\text{MHz}$		35	pF

Switching Times

t_{on}	Turn-On Time	$I_C=1.0\text{A}, R_L=50\Omega,$ $I_{B1}=-I_{B2}=0.1\text{A}, V_{CC}\approx 50\text{V}$			0.5	μs
t_{stg}	Storage Time				1.5	μs
t_f	Fall Time				0.5	μs

◆ h_{FE-2} Classifications

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