

isc Silicon NPN Power Transistor

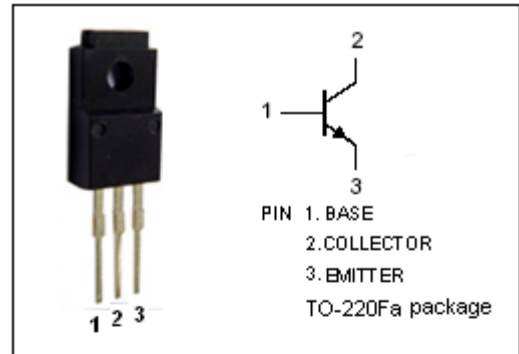
2SC3566

DESCRIPTION

- Low Collector Saturation Voltage
- Fast Switching Speed

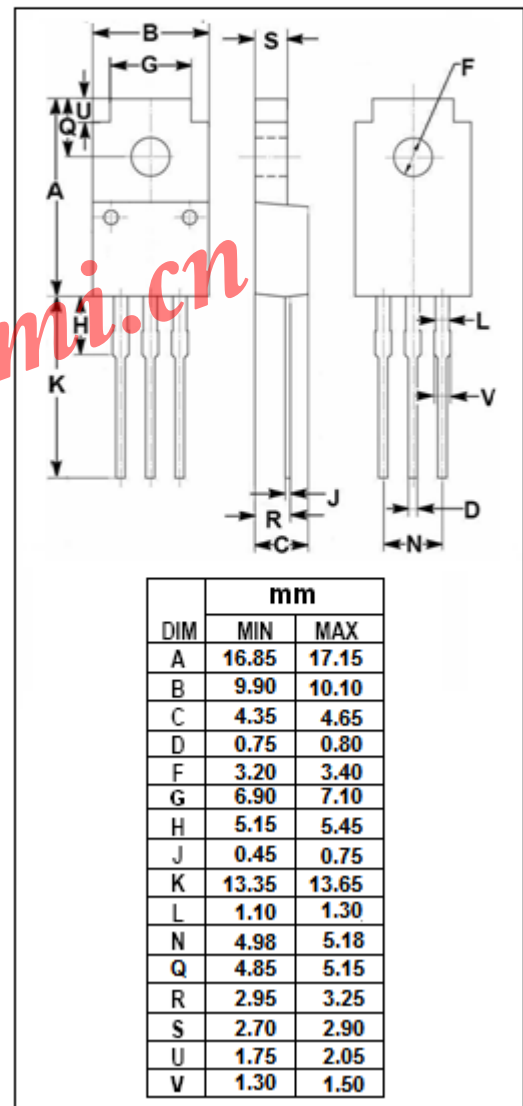
APPLICATIONS

- Designed for 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	80	V
V <sub>CEO</sub>	Collector-Emitter Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	12	V
I <sub>C</sub>	Collector Current-Continuous	5	A
I <sub>CM</sub>	Collector Current-Peak	10	A
I <sub>B</sub>	Base Current-Continuous	2.5	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	25	
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	$I_C=3.0\text{A}; I_B=0.3\text{A}, L=1\text{mH}$	60		V
$V_{CEX(SUS)-1}$	Collector-Emitter Sustaining Voltage	$I_C=3.0\text{A}; I_{B1}=-I_{B2}=0.3\text{A}, V_{BE(OFF)}=5.0\text{V}, L=180\mu\text{H}, \text{clamped}$	80		V
$V_{CEX(SUS)-2}$	Collector-Emitter Sustaining Voltage	$I_C=6.0\text{A}; I_{B1}=0.6\text{A}; I_{B2}=-0.3\text{A}, V_{BE(OFF)}=-5.0\text{V}, L=180\mu\text{H}, \text{clamped}$	60		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3.0\text{A}; I_B=0.3\text{A}$		0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3.0\text{A}; I_B=0.3\text{A}$		1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=60\text{V}; I_E=0$		10	$\mu\text{A}$
$I_{CER}$	Collector Cutoff Current	$V_{CE}=60\text{V}; R_{BE}=51\Omega, T_a=125^{\circ}\text{C}$		1.0	mA
$I_{CEX}$	Collector Cutoff Current	$V_{CE}=60\text{V}; V_{BE(off)}=-1.5\text{V}$ $V_{CE}=60\text{V}; V_{BE(off)}=-1.5\text{V}, T_a=125^{\circ}\text{C}$		10 1.0	$\mu\text{A}$ mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		10	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=0.3\text{A}; V_{CE}=5\text{V}$	40		
$h_{FE-2}$	DC Current Gain	$I_C=3.0\text{A}; V_{CE}=5\text{V}$	40	200	

## Switching times

$t_{on}$	Turn-on Time	$I_C=3.0\text{A}, R_L=17\Omega,$ $I_{B1}=-I_{B2}=0.3\text{A}, V_{CC}\approx 50\text{V}$		0.5	$\mu\text{s}$
$t_{stg}$	Storage Time			3.0	$\mu\text{s}$
$t_f$	Fall Time			0.5	$\mu\text{s}$

◆  $h_{FE-2}$  Classifications

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