

**Silicon NPN Power Transistor**

**2SC4550**

**DESCRIPTION**

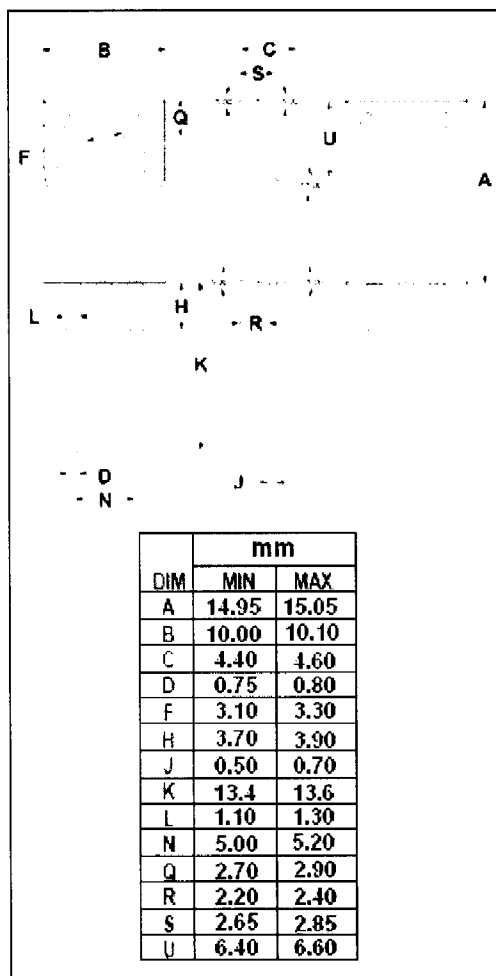
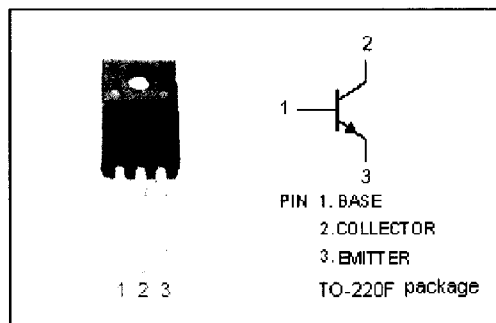
- Collector-Emitter Sustaining Voltage-  
 :  $V_{CE(SUS)} = 60V(\text{Min})$
- High DC Current Gain-  
 :  $h_{FE} = 100(\text{Min}) @ (V_{CE} = 2V, I_C = 1.5A)$
- Low Saturation Voltage-  
 :  $V_{CE(sat)} = 0.3V(\text{Max}) @ (I_C = 4A, I_B = 0.2A)$

**APPLICATIONS**

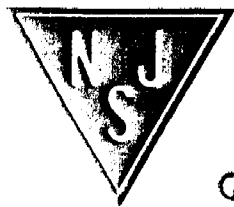
- Designed for use as a driver in DC/DC converters and actuators.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	7.0	V
$I_C$	Collector Current-Continuous	7.0	A
$I_{CM}$	Collector Current-Pulse	14	A
$I_B$	Base Current-Continuous	3.5	A
$P_T$	Total Power Dissipation @ $T_C = 25^\circ\text{C}$	30	W
	Total Power Dissipation @ $T_a = 25^\circ\text{C}$	2.0	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$



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# 2SC4550

## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEQ(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 4.0A; I <sub>B</sub> = 0.4A, L = 1mH	60			V
V <sub>CES(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 4.0A; I <sub>B1</sub> = -I <sub>B2</sub> = 0.4A, V <sub>BE(OFF)</sub> = -1.5V, L = 180 μ H, clamped	60			V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 4A; I <sub>B</sub> = 0.2A			0.3	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 6A; I <sub>B</sub> = 0.3A			0.5	V
V <sub>BE(sat)-1</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 4A; I <sub>B</sub> = 0.2A			1.2	V
V <sub>BE(sat)-2</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 6A; I <sub>B</sub> = 0.3A			1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 60V; I <sub>E</sub> = 0			10	μ A
I <sub>CER</sub>	Collector Cutoff Current	V <sub>CE</sub> = 60V; R <sub>BE</sub> = 50 Ω, T <sub>a</sub> = 125°C			1.0	mA
I <sub>CES</sub>	Collector Cutoff Current	V <sub>CE</sub> = 60V; V <sub>BE(off)</sub> = -1.5V V <sub>CE</sub> = 60V; V <sub>BE(off)</sub> = -1.5V, T <sub>a</sub> = 125°C			10 1.0	μ A mA
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> = 0.7A; V <sub>CE</sub> = 2V	100			
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 1.5A; V <sub>CE</sub> = 2V	100		400	
h <sub>FE-3</sub>	DC Current Gain	I <sub>C</sub> = 4.0A; V <sub>CE</sub> = 2V	60			
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 10V; f = 1.0MHz		100		pF
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 1A; V <sub>CE</sub> = 10V		150		MHz

### Switching times

t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 4.0A, R <sub>L</sub> = 12.5 Ω, I <sub>B1</sub> = -I <sub>B2</sub> = 0.2A, 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				0.3	μ s

### ◆ h<sub>FE-2</sub> Classifications

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