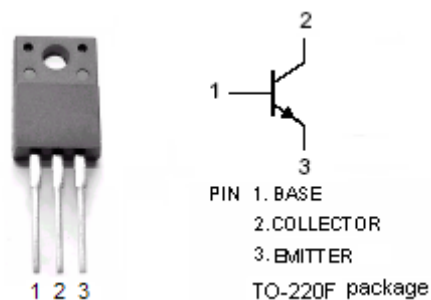


NPN 2SC4550

SILICON EPITAXIAL TRANSISTOR FOR HIGH-SPEED SWITCHING

The 2SC4550 is a power transistor developed for high-speed switching and features low $V_{CE(sat)}$ and high h_{FE} . This transistor is ideal for use in drivers such as DC/DC converters and actuators. In addition, a small resin-molded insulation type package contributes to high-density mounting and reduction of cost. Compliance to RoHS.



ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage		60	V
V_{CBO}	Collector-Base Voltage		100	V
V_{EBO}	Emitter-Base Voltage		7	V
I_C	Collector Current		7	A
$I_{C(pulse)}$	Collector Current (pulse)		14	A
I_B	Base Current		3.5	A
P_D	Total Power Dissipation	@ $T_C = 25^\circ\text{C}$	30	W
P_D	Total Power Dissipation	@ $T_a = 25^\circ\text{C}$	2	W
T_J	Junction Temperature		150	$^\circ\text{C}$
T_{Stg}	Storage Temperature		-65 to +200	$^\circ\text{C}$

NPN 2SC4550

h_{FE} CLASSIFICATION

Marking	Test Condition(s)	M	L	K
h_{FE2}	$I_C = 1.5 \text{ A}$, $V_{CE} = 2 \text{ V}$	100 to 200	150 to 300	200 to 400

ELECTRICAL CHARACTERISTICS

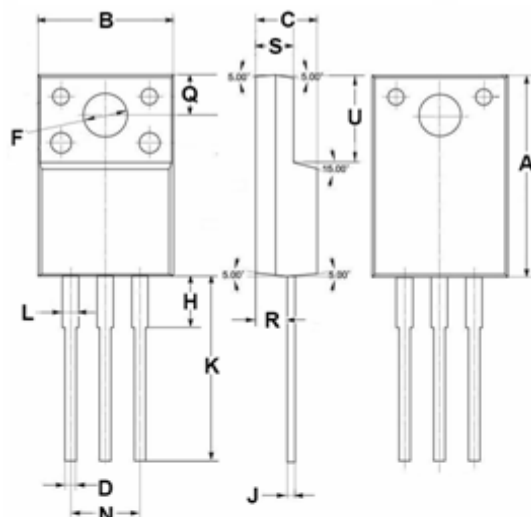
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
V_{CEO}	Collector to Emitter Voltage	$I_C = 4 \text{ A}$, $I_B = 0.4 \text{ A}$, $L = 1 \text{ mH}$	60	-	-	V
V_{CEX}	Collector to Emitter Voltage	$I_C = 4 \text{ A}$, $I_{B1} = -I_{B2} = 0.4 \text{ A}$ $V_{BE(OFF)} = -1.5 \text{ V}$, $L = 180 \mu\text{H}$ clamped	60	-	-	
I_{CBO}	Collector Cutoff Current	$V_{CB} = 60 \text{ V}$, $I_E = 0$	-	-	10	μA
I_{CER}	Collector Cutoff Current	$V_{CE} = 60 \text{ V}$, $R_{BE} = 50 \Omega$ $T_a = 125^\circ\text{C}$	-	-	1	mA
I_{CEX}	Collector Cutoff Current	$V_{CE} = 60 \text{ V}$, $V_{BE(OFF)} = -1.5 \text{ V}$	-	-	10	μA
		$V_{CE} = 60 \text{ V}$, $V_{BE(OFF)} = -1.5 \text{ V}$ $T_a = 125^\circ\text{C}$	-	-	1	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5.0 \text{ V}$, $I_C = 0$	-	-	10	μA
h_{FE}	DC Current Gain (*)	h_{FE1} $I_C = 0.7 \text{ A}$, $V_{CE} = 2 \text{ V}$	100	-	-	-
		h_{FE2} $I_C = 1.5 \text{ A}$, $V_{CE} = 2 \text{ V}$	100	200	400	
		h_{FE3} $I_C = 4 \text{ A}$, $V_{CE} = 2 \text{ V}$	60	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 4 \text{ A}$, $I_B = 0.2 \text{ A}$	-	-	0.3	V
		$I_C = 6 \text{ A}$, $I_B = 0.3 \text{ A}$	-	-	0.5	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$I_C = 4 \text{ A}$, $I_B = 0.2 \text{ A}$	-	-	1.2	
		$I_C = 6 \text{ A}$, $I_B = 0.3 \text{ A}$	-	-	1.5	
C_{ob}	Collector capacitance	$V_{CB} = 10 \text{ V}$, $I_E = 0$ $f = 1.0 \text{ MHz}$	-	100	-	pF
f_T	Gain bandwidth product	$I_C = 1 \text{ A}$, $V_{CE} = 10 \text{ V}$	-	150	-	MHz
t_{on}	Turn-on time	$I_C = 4 \text{ A}$, $R_L = 12.5 \Omega$	-	0.1	0.3	μs
t_{stg}	Storage time	$I_{B1} = -I_{B2} = 0.2 \text{ A}$, $V_{CC} = 50 \text{ V}$	-	1	1.5	
t_f	Fall time	Refer to the test circuit.	-	0.1	0.3	

(*) Pulse conditions : $t_p < 300 \mu\text{s}$, $\delta = 2\%$

NPN 2SC4550

MECHANICAL DATA CASE TO-220



DIM	mm	
	MIN	MAX
A	14.95	15.05
B	10.00	10.10
C	4.40	4.60
D	0.75	0.80
F	3.10	3.30
H	3.70	3.90
J	0.50	0.70
K	13.4	13.6
L	1.10	1.30
N	5.00	5.20
Q	2.70	2.90
R	2.20	2.40
S	2.65	2.85
U	6.40	6.60

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