

# MICRO ELECTRONICS

**BC445**  
**BC446**

**SILICON**  
**EPITAXIAL TRANSISTOR**

**DESCRIPTION**

BC445 (NPN) and BC446 (PNP) are silicon planar transistor designed for use as high voltage driver and output transistor. Particularly suitable as power darlington drivers.

TO-92P



CBE

**ABSOLUTE MAXIMUM RATINGS**

Collector-Emitter Voltage	V <sub>CEO</sub>	60V
Collector-Base Voltage	V <sub>CBO</sub>	60V
Emitter-Base Voltage	V <sub>EBO</sub>	5V
Collector Current-Continuous	I <sub>C</sub>	300mA
Total Power Dissipation @ T <sub>A</sub> =25°C	P <sub>tot</sub>	625mW
Derate above 25°C		5mW/°C
Total Power Dissipation @ T <sub>C</sub> =25°C	P <sub>tot</sub>	1.5W
Derate above 25°C		12mW/°C
Operating and Storage Junction Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 to +150°C

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise specified)**

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	60			V	I <sub>C</sub> =1mA I <sub>B</sub> =0
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	60			V	I <sub>C</sub> =100μA I <sub>E</sub> =0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	5			V	I <sub>E</sub> =10μA I <sub>C</sub> =0
Collector Cutoff Current	I <sub>CBO</sub>			100	nA	V <sub>CB</sub> =30V I <sub>E</sub> =0
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		0.1	0.25	V	I <sub>C</sub> =100mA I <sub>B</sub> =10mA*
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		0.85		V	I <sub>C</sub> =100mA I <sub>B</sub> =10mA*
Base-Emitter Voltage	V <sub>BE</sub>		0.8	1.2	V	I <sub>C</sub> =100mA V <sub>CE</sub> =5V*
Current Gain-Bandwidth Product	f <sub>T</sub>	100	250		MHz	I <sub>C</sub> =50mA V <sub>CE</sub> =5V f=100MHz
Output Capacitance	C <sub>ob</sub>		3		pF	V <sub>CB</sub> =10V I <sub>E</sub> =0
Input Capacitance	C <sub>ib</sub>		16		pF	VEB=0.5V I <sub>C</sub> =0

\* Pulse Test : Pulse Width = 300μs, Duty Cycle = 2%.

**D.C. Current Gain (H<sub>FE</sub>) @ V<sub>CE</sub>=5V**

at I <sub>C</sub> (Pulsed)	Full Range		Group A		Group B	
	min	max	min	max	min	max
2mA	50	460	120	220	180	460
10mA	50		100		160	
100mA	50		60		90	