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BC445
BC447
BC449

CASE 29-02, STYLE 17
TO-92 (TO-226AA)

HIGH VOLTAGE TRANSISTORS

NPN SILICON

Refer to MPS8098 for graphs.

MAXIMUM RATINGS

Rating	Symbol	BC 445	BC 447	BC 449	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	100	Vdc
Collector-Base Voltage	V_{CBO}	60	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	5.0			Vdc
Collector Current – Continuous	I_C	300			mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	625 5.0			mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12			Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150			°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JC}$	200	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Characteristic			Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS							
Collector-Emitter Breakdown Voltage* (I_C = 1.0 mAdc, I_B = 0)	BC445		$V_{(BR)CEO}$	60	—	—	Vdc
	BC447			80	—	—	
	BC449			100	—	—	
Collector-Base Breakdown Voltage (I_C = 100 μA, I_E = 0)	BC445		$V_{(BR)CBO}$	60	—	—	Vdc
	BC447			80	—	—	
	BC449			100	—	—	
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)			$V_{(BR)EBO}$	5	—	—	Vdc
Collector Cutoff Current			I_{CBO}				nAdc
V_{CB} = 30 Vdc – I_E = 0	BC445			—	—	100	
V_{CB} = 40 Vdc – I_E = 0	BC447			—	—	100	
V_{CB} = 60 Vdc – I_E = 0	BC449			—	—	100	
ON CHARACTERISTICS*							
DC Current Gain – I_C = 2 mA, V_{CE} = 5 V		full range	h_{FE}	50		460	
		A		120		220	
	BC445/447 only	B		180		460	
I_C = 10 mA, V_{CE} = 5 V		full range		50			
		A		100			
	BC445/447 only	B		160			
I_C = 100 mA, V_{CE} = 5 V		full range		50			
		A		60			
	BC445/447 only	B		90			
Collector-Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 10 mAdc)			$V_{CE(sat)}$	—	0.1	0.25	Vdc
Base-Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 10 mAdc)			$V_{BE(sat)}$	—	0.85	—	Vdc
Base-Emitter On Voltage (I_C = 100 mAdc, V_{CE} = 5.0 Vdc)			$V_{BE(on)}$	—	0.8	1.2	Vdc
DYNAMIC CHARACTERISTICS							
Current-Gain-Bandwidth Product (I_C = 50 mAdc, V_{CE} = 5.0 Vdc, f = 100 MHz)			f_T	100	250	—	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)			C_{ob}	—	3.0	—	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)			C_{ib}	—	16	—	pF

* Pulse test - Pulse width ≤ 300 μs - Duty Cycle 2%