

MAXIMUM RATINGS

Rating	Symbol	BDC 05	BDC 07	Unit
Collector-Emitter Voltage	V _{CEO}	300	250	V _{dc}
Collector-Base Voltage	V _{CBO}	300	250	V _{dc}
Emitter-Base Voltage	V _{EBO}	5.0		V _{dc}
Collector Current – Continuous	I _C	500		mA _{dc}
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	1 8.0		Watt mW/°C
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	2.5 50		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 _{θJC}	50	°C/W
Thermal Resistance, Junction to Ambient	R _{θJA}	125	°C/W

BDC05
BDC07

CASE 29-03, STYLE 14
TO-92 (TO-226AE)

HIGH VOLTAGE TRANSISTORS

NPN SILICON

Refer to MPSW42 for graphs.

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

Characteristic	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (1) (I _C = 1 mA _{dc} , I _B = 0)	V _{(BR)CEO}	300 250	—	V _{dc}
Collector-Base Breakdown Voltage (I _C = 100 μA _{dc} , I _E = 0)	V _{(BR)CBO}	300 250	—	V _{dc}
Emitter-Base Breakdown Voltage (I _E = 100 μA _{dc} , I _C = 0)	V _{(BR)EBO}	5.0 5.0	—	V _{dc}
Collector Cutoff Current (V _{CB} = 200 V _{dc} , I _E = 0)	I _{CBO}	—	0.01	μA _{dc}
Emitter Cutoff Current (V _{BE} = 5.0 V _{dc} , I _C = 0)	I _{EBO}	—	10	μA _{dc}

ON CHARACTERISTICS

DC Current Gain (I _C = 25 mA _{dc} , V _{CE} = 20 V _{dc})	h _{FE}	40 50	—	—
Collector-Emitter Saturation Voltage (I _C = 20 mA _{dc} , I _B = 2.0 mA _{dc})	V _{CE(sat)}		2	V _{dc}
Base-Emitter Saturation Voltage (I _C = 20 mA _{dc} , I _B = 2.0 mA _{dc})	V _{BE(sat)}		2.0	V _{dc}

DYNAMIC CHARACTERISTICS

Current Gain-Bandwidth Product (I _C = 10 mA _{dc} , V _{CE} = 10 V _{dc} , f = 50 MHz)	f _T	60	—	MHz
Collector-Base Capacitance (V _{CB} = 30 V _{dc} , I _E = 0, f = 1.0 MHz)	C _{re}		2.8	pF

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.