

POWERTECH INC

BIG POWER™

PowerTech

70 AMPERES

PT-7501

PT-7502

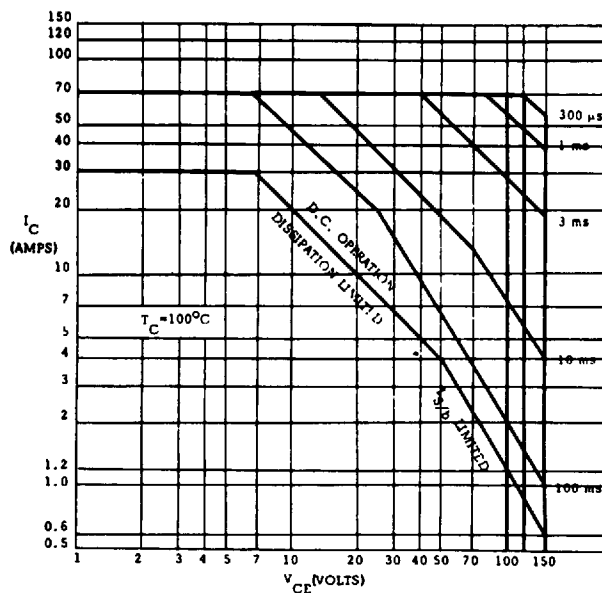
PT-7503

SILICON NPN TRANSISTOR

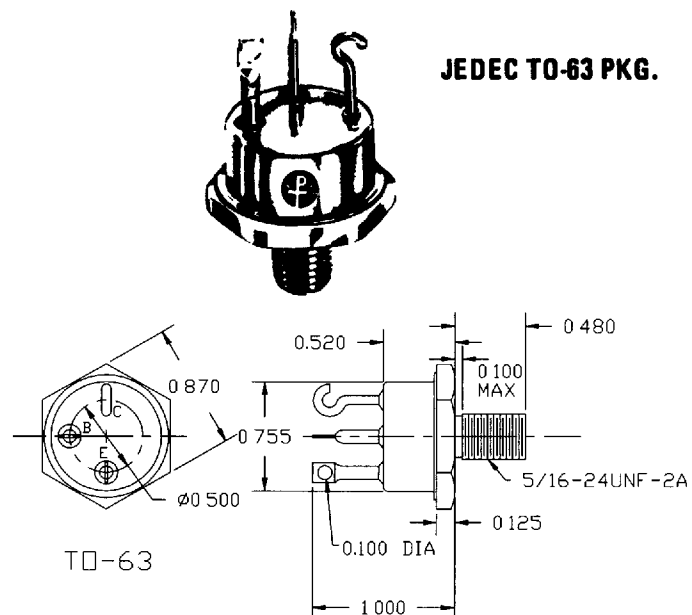
FEATURES:

$V_{CE(sat)}$	0.6 V @ 30 A	h_{FE}	5 min @ 70 A	$I_{S/b}$	1.2 A @ 100 V
V_{BE}	1.2 V @ 30 A	t_f	2 μ sec	$E_{S/b}$	6 Joules

SAFE OPERATING AREA



JEDEC TO-63 PKG.



PowerTech's transistors offer high current capability, high breakdown voltage and the lowest available saturation voltage. They have exceptional resistance to both forward and reverse second breakdown. This unique combination of device characteristics makes them particularly suited for a wide variety of high current applications, which include series and switching regulators, motor controls, servoamplifiers and power control circuits. The transistors will provide outstanding performance when used as replacements for paralleled lower current devices, resulting in considerable reductions in weight, space and circuit complexity. Their reliability is assured through 100% power testing at 50V, 4A @ 100°C case temperature. These transistors exceed the requirements of MIL-S-19500 and are well suited for the most severe military-aerospace applications.

MAXIMUM RATINGS

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Peak Collector Current
D.C. Collector Current
Power Dissipation @ 25°C
Power Dissipation @ 100°C
Thermal Resistance
Operating Temperature Range
Storage Temperature Range

SYMBOL

V_{CBO}
 V_{CEO} (sus)
 V_{EBO}
 I_C
 I_C
 P_D
 P_D
 θ_{J-C}

PT-7501

120V
100V

PT-7502

150V
120V
10V
70A
30A
350W
200W
0.5° C/W
-65 to 200°C
-65 to 200°C

PT-7503

175V
150V

POWERTECH INC		17E D		LIMITS				UNITS	TEST CONDITIONS
TEST	SYMBOL	PT7501		PT7502		PT7503			
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
D.C. Current Gain*	h_{FE}	10	40	10	40	10	40	—	$I_C = 30A, V_{CE} = 2V$
D.C. Current Gain*	h_{FE}	5	—	5	—	5	—	—	$I_C = 70A, V_{CE} = 4V$
Collector Saturation Voltg.*	$V_{CE(sat)}$	—	0.60	—	0.60	—	0.60	V	$I_C = 30A, I_B = 4A$
Collector Saturation Voltg.*	$V_{CE(sat)}$	—	1.5	—	1.5	—	1.5	V	$I_C = 70A, I_B = 16A$
Base Emitter Voltage*	V_{BE}	—	1.2	—	1.2	—	1.2	V	$I_C = 30A, V_{CE} = 2V$
Base Emitter Voltage*	V_{BE}	—	2.5	—	2.5	—	2.5	V	$I_C = 70A, V_{CE} = 4V$
Collector-Emitter Voltage*	$V_{CEO(sus)}$	100	—	120	—	150	—	V	$I_C = 200mA, I_B = 0$
Collector Cutoff Current	I_{CBO}	—	2	—	—	—	—	mA	$V_{CB} = 120V, I_{EB} = 0$
Collector Cutoff Current	I_{CBO}	—	—	—	2	—	—	mA	$V_{CB} = 150V, I_{EB} = 0$
Collector Cutoff Current	I_{CBO}	—	—	—	—	—	2	mA	$V_{CB} = 175V, I_{EB} = 0$
Collector Cutoff Current @ 150°C	I_{CBO}	—	10	—	10	—	10	mA	$V_{CB} = 100V, I_{EB} = 0$
Emitter Cutoff Current	I_{EBO}	—	1	—	1	—	1	mA	$V_{EB} = 10V, I_{CB} = 0$
Gain Bandwidth Product (Typ.)	f_t	1	—	1	—	1	—	MHz	$I_C = 5A, V_{CE} = 10V, f = 100KHz$
Collector Capacitance	$C_{obo.}$	—	1800	—	1800	—	1800	pf.	$V_{CB} = 10V$
Switching Speed (Typ.) (PowerTech Test Circuit)	t_r	—	2	—	2	—	2	μsec	$I_C = 30A,$
	t_s	—	3	—	3	—	3	μsec	
	t_f	—	2	—	2	—	2	μsec	$I_{B1} = 3A, I_{B2} = 6A$

* $\leq 300 \mu sec$ Pulse 2% Duty Cycle