

"BIG IDEAS IN
BIG POWER"

PowerTech

80 AMPERES

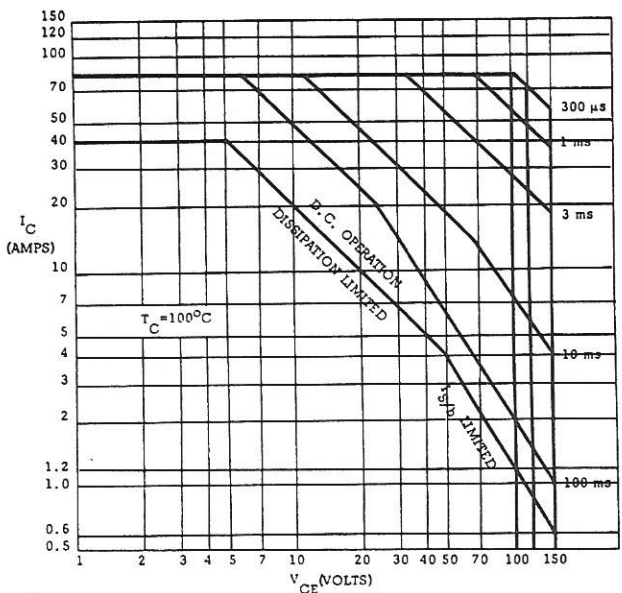
PT-7504
PT-7505
PT-7506

SILICON NPN TRANSISTOR

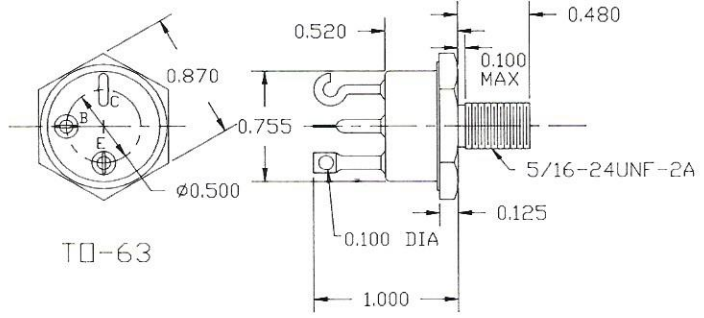
FEATURES:

$V_{CE(sat)}$	0.6 V @ 40 A	h_{FE}	5 min @ 80 A	$I_{S/b}$	1.2 A @ 100 V
V_{BE}	1.2 V @ 40 A	t_f	2 μ sec	$E_{S/b}$	6 Joules

SAFE OPERATING AREA



JEDEC TO-63 PKG.



TO-63

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	SYMBOL	PT-7504	PT-7505	PT-7506
Collector-Base Voltage	V_{CBO}	120V	150V	175V
Collector-Emitter Voltage	V_{CEO} (sus)	100V	120V	150V
Emitter-Base Voltage	V_{EBO}		10V	
Peak Collector Current	I_C		80A	
D.C. Collector Current	I_C		40A	
Power Dissipation @ 25°C	P_D		350W	
Power Dissipation @ 100°C	P_D		200W	
Thermal Resistance	θ_{J-C}		0.5° C/W	
Operating Temperature Range			-65 to 200°C	
Storage Temperature Range			-65 to 200°C	

ELECTRICAL CHARACTERISTICS 25°C

TEST	SYMBOL	LIMITS						UNITS	TEST CONDITIONS
		PT7504		PT7505		PT7506			
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
D.C. Current Gain*	h_{FE}	10	40	10	40	10	40	-	$I_C = 40A, V_{CE} = 2V$
D.C. Current Gain*	h_{FE}	5	-	5	-	5	-	-	$I_C = 80A, V_{CE} = 4V$
Collector Saturation Voltg.*	$V_{CE(sat)}$	-	0.60	-	0.60	-	0.60	V	$I_C = 40A, I_B = 5A$
Collector Saturation Voltg.*	$V_{CE(sat)}$	-	1.5	-	1.5	-	1.5	V	$I_C = 80A, I_B = 20A$
Base Emitter Voltage*	V_{BE}	-	1.2	-	1.2	-	1.2	V	$I_C = 40A, V_{CE} = 2V$
Base Emitter Voltage*	V_{BE}	-	2.5	-	2.5	-	2.5	V	$I_C = 80A, V_{CE} = 4V$
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	μ sec	$I_C = 40A,$ $I_{B1} = - I_{B2} = 8A$
	t_s	-	3	-	3	-	3	μ sec	
	t_f	-	2	-	2	-	2	μ sec	

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

