

"BIG IDEAS IN  
BIG POWER"

# PowerTech

## 120 AMPERES

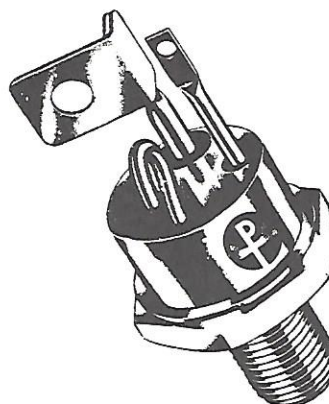
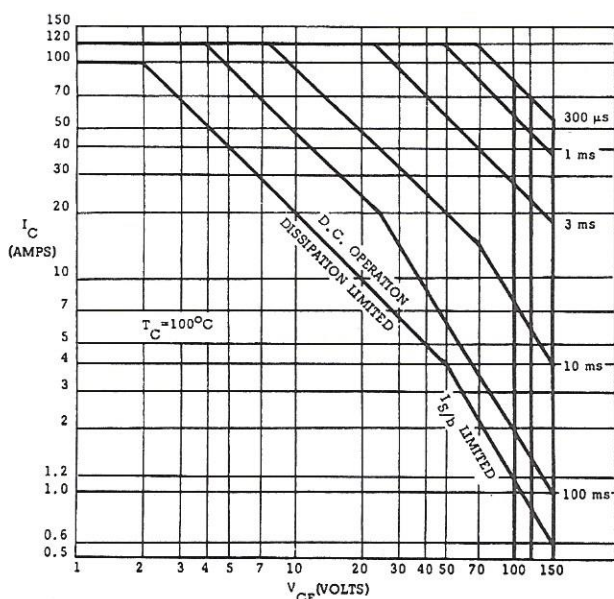
JAN TX2N5927  
PT- 700  
PT- 702

### SILICON NPN TRANSISTOR

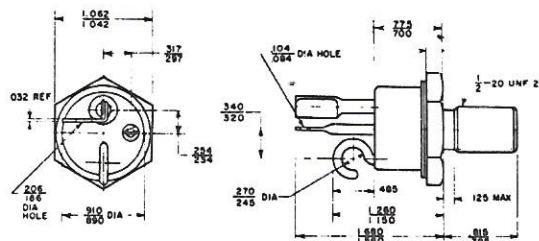
#### FEATURES:

$V_{CE(sat)}$ .....	0.75 V @ 70 A	$h_{FE}$ .....	5 min @120A	$I_{S/b}$ .....	1.2 A @ 100 V
$V_{BE}$ .....	1.5 V @ 70 A	$t_f$ .....	2.5 $\mu$ sec	$E_{S/b}$ .....	6 Joules

#### SAFE OPERATING AREA



JEDEC TO-114 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

	SYMBOL	PT-702	2N5927	PT-700
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	$I_C$		120A	
D.C. Collector Current	$I_C$		100A	
Power Dissipation @ 25°C	$P_D$		350W	
Power Dissipation @ 100°C	$P_D$		200W	
Thermal Resistance	$\theta_{J-C}$		0.5° C/W	
Operating Temperature Range			-65 to 200°C	

# ELECTRICAL CHARACTERISTICS 25°C

TEST	SYMBOL	LIMITS						UNITS	TEST CONDITIONS
		PT702		2N5927		PT700			
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
D.C. Current Gain*	$h_{FE}$	10	40	10	40	10	40	-	$I_C = 70A, V_{CE} = 2V$
D.C. Current Gain*	$h_{FE}$	5	-	5	-	5	-	-	$I_C = 120A, V_{CE} = 4V$
Collector Saturation Voltg.*	$V_{CE(sat)}$	-	0.75	-	0.75	-	0.75	V	$I_C = 70A, I_B = 7A$
Collector Saturation Voltg.*	$V_{CE(sat)}$	-	2.0	-	2.0	-	2.0	V	$I_C = 120A, I_B = 24A$
Base Emitter Voltage*	$V_{BE}$	-	1.5	-	1.5	-	1.5	V	$I_C = 70A, V_{CE} = 2V$
Base Emitter Voltage*	$V_{BE}$	-	3.0	-	3.0	-	3.0	V	$I_C = 120A, V_{CE} = 4V$
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.	$V_{CB} = 10V, f = 100KHZ$
Switching Speed (Typ.) (PowerTech Test Circuit)	$t_r$	-	2.5	-	2.5	-	2.5	$\mu$ sec	$I_C = 50A$
	$t_s$	-	3	-	3	-	3	$\mu$ sec	
	$t_f$	-	2.5	-	2.5	-	2.5	$\mu$ sec	$I_{B1} = 10A, - I_{B2} = 5A$

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

