

"BIG IDEAS IN
BIG POWER"

PowerTech

150 AMPERES

2N5928

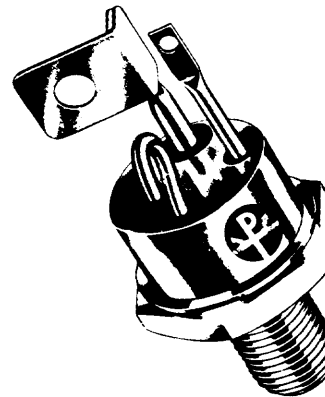
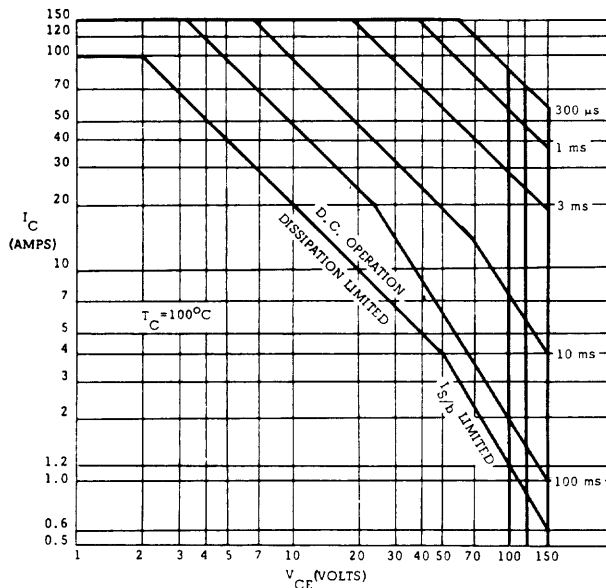
PT-8502

SILICON NPN TRANSISTOR

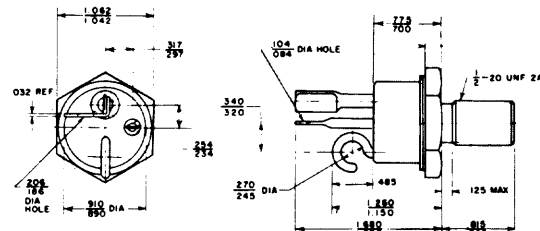
FEATURES:

$V_{CE(sat)}$	1.0 V @ 100 A	h_{FE}	5 min @ 150 A	$I_{S/b}$	1.2 A @ 100 V
V_{BE}	2.0 V @ 100 A	t_f	2.5 μ 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-8502

2N5928

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

ELECTRICAL CHARACTERISTICS 25°C

TEST	SYMBOL	LIMITS				UNITS	TEST CONDITIONS
		PT8502		2N5928			
		MIN.	MAX.	MIN.	MAX.		
D.C. Current Gain*	h_{FE}	10	40	10	40	—	$I_C = 100A, V_{CE} = 2V$
D.C. Current Gain*	h_{FE}	5	—	5	—	—	$I_C = 150A, V_{CE} = 4V$
Collector Saturation Voltg.*	$V_{CE(sat)}$	—	1.0	—	1.0	V	$I_C = 100A, I_B = 10A$
Collector Saturation Voltg.*	$V_{CE(sat)}$	—	2.0	—	2.0	V	$I_C = 150A, I_B = 25A$
Base Emitter Voltage*	V_{BE}	—	2.0	—	2.0	V	$I_C = 100A, V_{CE} = 2V$
Base Emitter Voltage*	V_{BE}	—	3.0	—	3.0	V	$I_C = 150A, V_{CE} = 4V$
Collector-Emitter Voltage*	$V_{CEO(sus)}$	100	—	120	—	V	$I_C = 200mA, I_B = 0$
Collector Cutoff Current	I_{CBO}	—	2	—	—	mA	$V_{CB} = 100V, I_{EB} = 0$
Collector Cutoff Current	I_{CBO}	—	—	—	2	mA	$V_{CB} = 120V, I_{EB} = 0$
Collector Cutoff Current @ 150°C	I_{CBO}	—	10	—	10	mA	$V_{CB} = 100V, I_{EB} = 0$
Emitter Cutoff Current	I_{EBO}	—	1	—	1	mA	$V_{EB} = 10V, I_{CB} = 0$
Gain Bandwidth Product (Typ.)	f_t	1	—	1	—	MHz	$I_C = 5A, V_{CE} = 10V, f = 100KHz$
Collector Capacitance	C_{obo}	—	1800	—	1800	pf.	$V_{CB} = 10V, f = 100KHz$
Switching Speed (Typ.) (PowerTech Test Circuit)	t_r	—	2.5	—	2.5	μsec	$I_C = 50A$
	t_s	—	3	—	3	μsec	
	t_f	—	2.5	—	2.5	μsec	$I_{B1} = 10A, -I_{B2} = 5A$

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

