

PowerTech

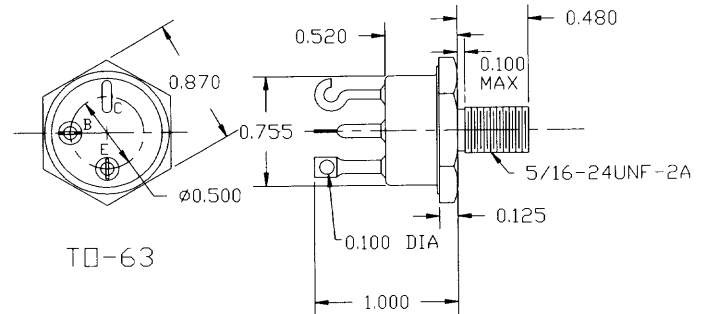
90 AMPERE TRANSISTOR

PT-3523

PT-3524

FEATURES

	PT-3523	PT-3524
V_{ceo}	400V	450V
V_{cbo}	450V	500V
V_{ebo}	10V	
I_c	50A	
I_{cm}	90A	
P_d	350W	
θ_{jc}	0.5°C/W	
T_j	-65 to 200°C	
T_{stg}	-65 to 200°C	
T_{lead}	275°C	



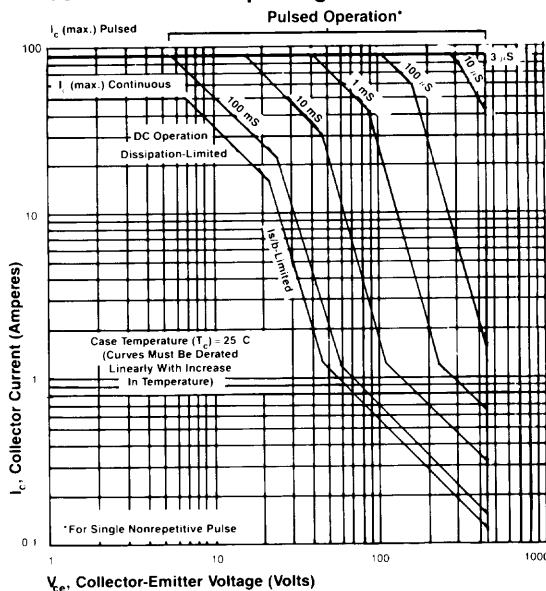
MAXIMUM RATINGS, ABSOLUTE MAXIMUM VALUES

($T_c = 25^\circ\text{C}$)

	PT-3523	PT-3524
Collector-Emitter Voltage	V_{ceo} 400V	450V
Collector-Base Voltage	V_{cbo} 450V	500V
Emitter-Base Voltage	V_{ebo} 10V	
Collector Current, Continuous	I_c 50A	
Collector Current, Peak	I_{cm} 90A	
Power Dissipation	P_d 350W	
Derate Above $T_c = 25^\circ\text{C}$		2.0 W/°C
Operating Temperature	T_j -65 to 200°C	
Storage Temperature	T_{stg} -65 to 200°C	
Lead Temperature	T_{lead} 275°C	

(5 secs. max., 1/4 inch min. from seal)

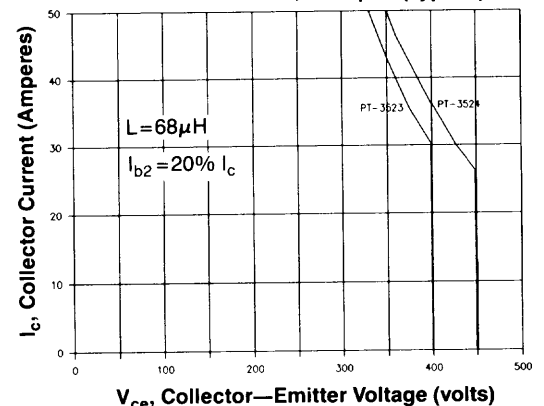
Forward Bias Safe Operating Area



Notes:

- 1 Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$
- 2 Pulse Test: Pulse Width $\leq 80 \mu\text{s}$, Duty Cycle $\leq 2\%$

Reverse Bias SOA, Clamped (Typical)



ELECTRICAL CHARACTERISTICS At Case Temperature (T_c) = 25°C Unless Otherwise Specified

Characteristic	Note	Symbol	Test Conditions	Min	PT-3523 Typ	Max	Min	PT-3524 Typ	Max	Units
D.C. Current Gain	1	h_{FE}	$I_c = 50A$ $V_{ce} = 5V$	10		50	10		50	
D.C. Current Gain	1	h_{FE}	$I_c = 90A$ $V_{ce} = 5V$	5			5			
Collector Saturation Voltage	1	$V_{ce} (sat)$	$I_c = 50A$ $I_b = 7A$			0.6			0.6	V
Collector Saturation Voltage	1	$V_{ce} (sat)$	$I_c = 50A$ $I_b = 10A$		0.28	0.6		0.28	0.6	V
Collector Saturation Voltage	1	$V_{ce} (sat)$	$I_c = 90A$ $I_b = 18A$		0.55	1.0		0.55	1.0	V
Base-Emitter Voltage	1	V_{be}	$I_c = 50A$ $V_{ce} = 5V$		0.9	1.5		0.9	1.5	V
Base-Emitter Voltage	1	V_{be}	$I_c = 90A$ $V_{ce} = 5V$		1.1	1.8		1.1	1.8	V
Collector-Emitter Breakdown Voltage	2	$V_{ceo}(sus)$	$I_c = 25mA$ $I_b = 0$	400			450			V
Collector Cutoff Current		I_{ces}	$V_{cb} = 450V$ $I_{eb} = 0$			2.0				mA
Collector Cutoff Current		I_{ces}	$V_{cb} = 500V$ $I_{eb} = 0$						2.0	mA
Collector Cutoff Current @ 150 C		I_{ces}	$V_{cb} = 250V$ $I_{eb} = 0$			20			20	mA
Emitter Cutoff Current		I_{ebo}	$V_{eb} = 10V$ $I_{cb} = 0$			5.0			5.0	mA
Gain Bandwidth Product (Typical)		f_t	$I_c = 5A$ $V_{ce} = 10V$	10			10			MHz
Collector Capacitance		C_{obo}	$V_{cb} = 50V$		500			500		pF
Rise Time		t_r	$I_c = 50A$ $I_b1 = 5A$		700	1000		700	1000	nS
Storage Time		t_s	$I_c = 50A$ $I_b1 = 5A$ $I_b2 = 10A$		900	2000		900	2000	nS
Fall Time		t_f	$I_c = 50A$ $I_b2 = 10A$		700	2000		700	2000	nS
Thermal Resistance		θ_{JC}	$V_{ce} = 20V$ $I_c = 10A$ $t_p = 1 \text{ sec.}$		0.3	0.5		0.3	0.5	°C/W
Forward Bias Safe Operating Area		FBSOA	$V_{ce} = 23V$ $t_p = 1 \text{ sec.}$	15.2			15.2			A
Inductive Switching Time		t_c	$I_c = 50A$ $I_b2 = 20A$ $L = 68\mu H$		800	2000		800	2000	nS

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- 2 Pulse Test: Pulse Width $\leq 80 \mu S.$, Duty Cycle $\leq 2\%$

