



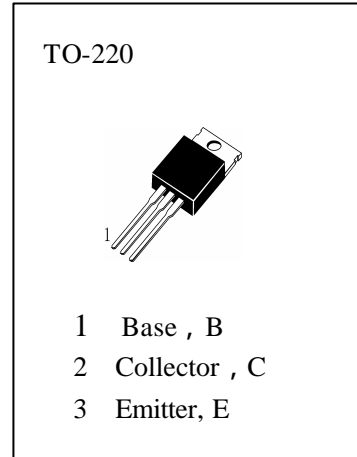
# HP50

## APPLICATIONS

High Voltage And switching.

## ABSOLUTE MAXIMUM RATINGS ( $T_a=25$ )

$T_{stg}$ —Storage Temperature.....	-65~150
$T_j$ —Junction Temperature.....	150
$P_C$ —Collector Dissipation ( $T_c=25$ ) .....	40W
$V_{CBO}$ —Collector-Base Voltage.....	500V
$V_{CEO}$ —Collector-Emitter Voltage.....	400V
$V_{EBO}$ —Emitter-Base Voltage.....	5V
$I_C$ —Collector Current( DC ).....	1A
$I_C$ —Collector Current ( Pulse ) .....	2A
$I_B$ —Base Current.....	0.6A



## ELECTRICAL CHARACTERISTICS ( $T_a=25$ )

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	400			V	$I_C=30mA, I_B=0$
$I_{CEO}$	Collector Cut-off Current			1	mA	$V_{CE}=300V, I_B=0$
$I_{EBO}$	Emitter-Base Cutoff Current			1	mA	$V_{EB}=5V, I_C=0$
$I_{CES}$	Collector Cut-off Current			1	mA	$V_{CE}=500V, V_{EB}=0$
$H_{FE}(1)$	DC Current Gain	22		150		$V_{CE}=10V, I_C=0.3A$
$H_{FE}(2)$		10				$V_{CE}=10V, I_C=1A$
$H_{FE}$		20				$V_{CE}=10V, I_C=0.2A, f=1MHz$
$V_{CE(sat)}$	Collector- Emitter Saturation Voltage			1	V	$I_C=1A, I_B=0.2A$
$V_{BE(on)}$	Base-Emitter On Voltage			1.5	V	$V_{CE}=10V, I_C=1A$
$f_T$	Current Gain-Bandwidth Product	10			MHZ	$V_{CE}=10V, I_C=0.1A, f=2MHz$
$R_{JC}$				3.125	/W	
$R_{JA}$				62.5	/W	

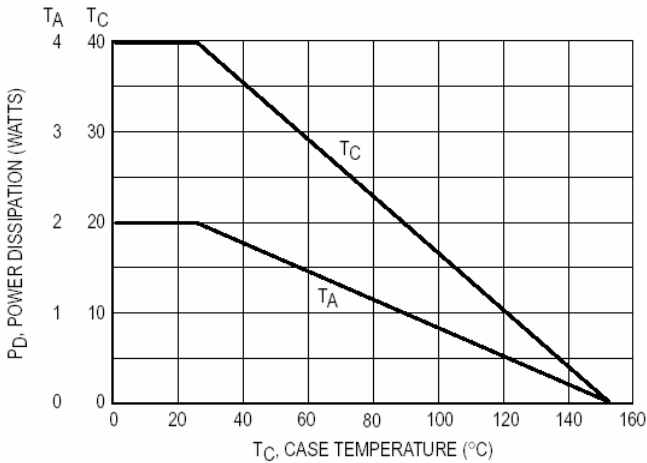
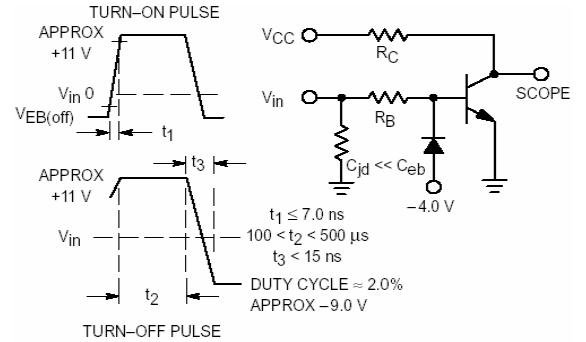


Figure 1. Power derating



$R_B$  and  $R_C$  VARIED TO OBTAIN DESIRED CURRENT LEVELS.

Figure 2. Switching Time Equivalent Circuit

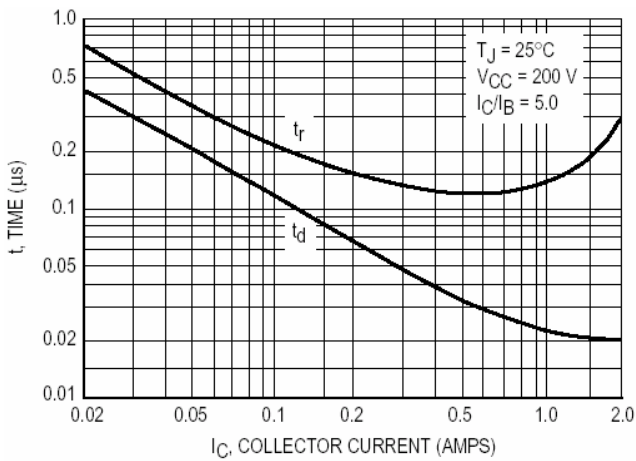


Figure 3. Turn-On Time

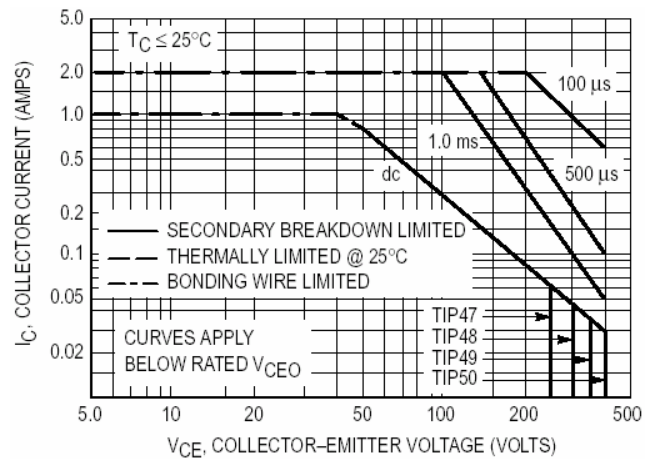


Figure 4. Active Region Safe Operating Area

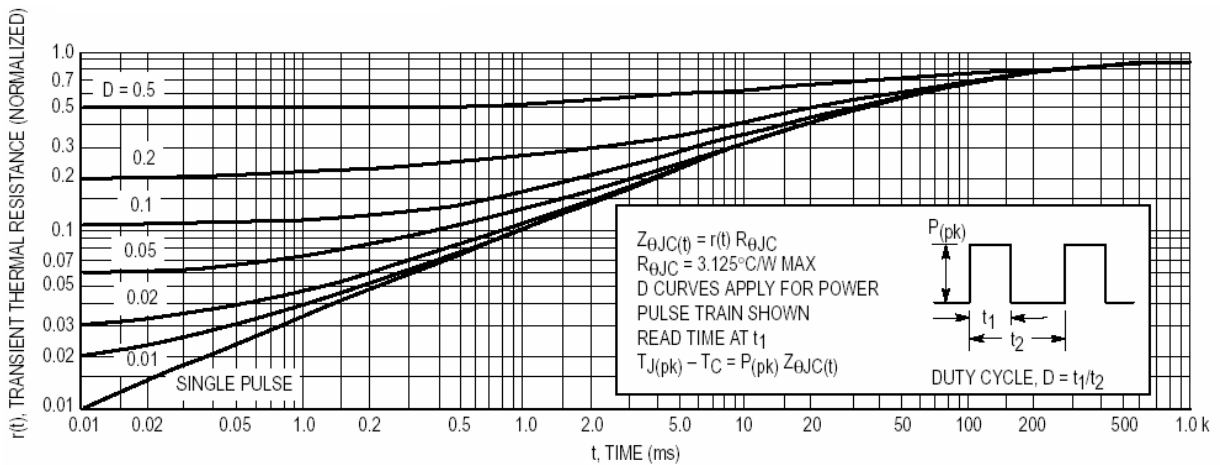
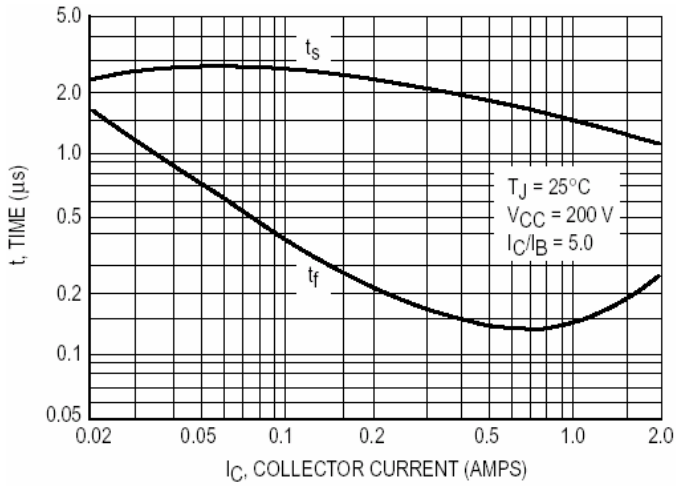
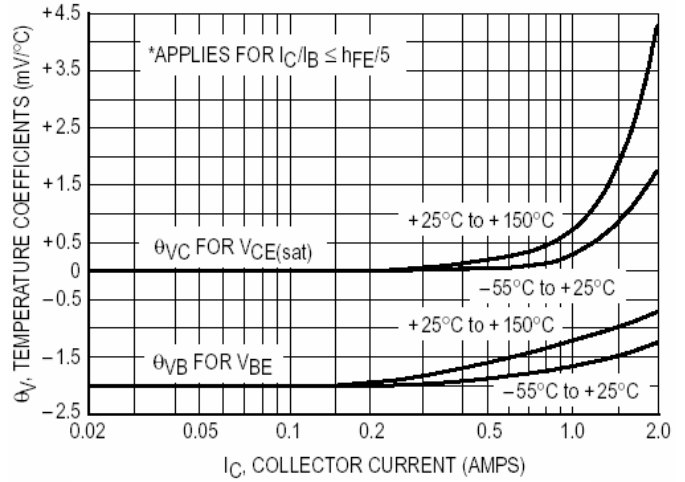


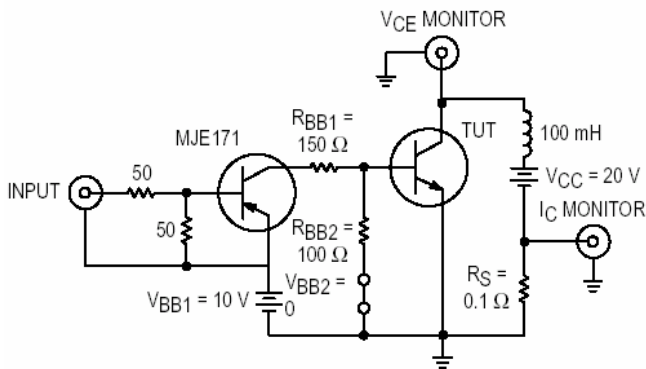
Figure 5. Thermal Response



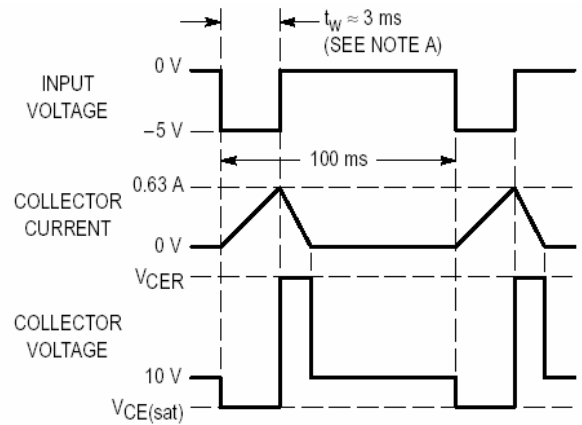
**Figure 6. Turn-Off Time**



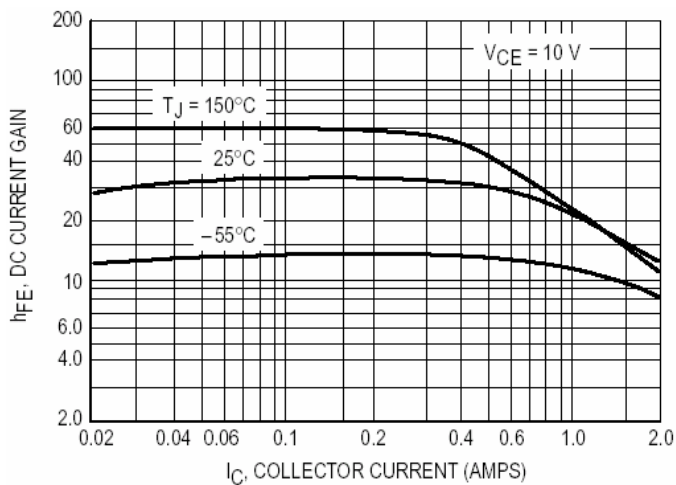
**Figure 7. Temperature Coefficients**



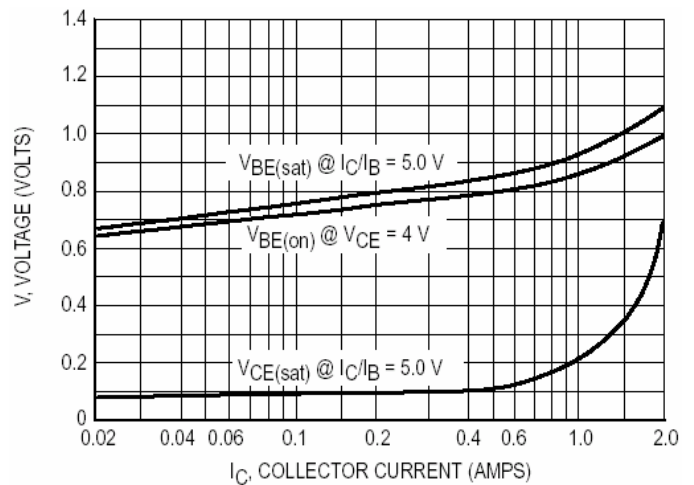
Note A: Input pulse width is increased until  $I_{CM} = 0.63$  A.



**Figure 8. Inductive Load Switching**



**Figure 9. DC Current Gain**



**Figure 10. "On" Voltages**