

TSC 		TS13003B High Voltage NPN Transistor														
TO-92  1 2 3			Pin assignment: 1. Emitter 2. Collector 3. Base			$BV_{CEO} = 400V$ $BV_{CBO} = 700V$ $I_C = 1.5A$ $V_{CE(SAT)}, = 0.8V @ I_C / I_B = 0.5A / 0.1A$										
Features ✧ High voltage. ✧ High speed switching			Ordering Information <table><tr><th>Part No.</th><th>Packing</th><th>Package</th></tr><tr><td>TS13003BCT B0</td><td>Bulk Pack</td><td>TO-92</td></tr><tr><td>TS13003BCT A3</td><td>Ammo Pack</td><td>TO-92</td></tr></table>					Part No.	Packing	Package	TS13003BCT B0	Bulk Pack	TO-92	TS13003BCT A3	Ammo Pack	TO-92
Part No.	Packing	Package														
TS13003BCT B0	Bulk Pack	TO-92														
TS13003BCT A3	Ammo Pack	TO-92														
Structure ✧ Silicon triple diffused type. ✧ NPN silicon transistor																
Absolute Maximum Rating (Ta = 25 °C unless otherwise noted)																
Parameter			Symbol	Limit	Unit											
Collector-Base Voltage			V_{CBO}	700V	V											
Collector-Emitter Voltage			V_{CEO}	400V	V											
Emitter-Base Voltage			V_{EBO}	9	V											
Collector Current	DC	I_C	1.5	A												
	Pulse		3													
Collector Power Dissipation			P_D	0.6	W											
Operating Junction Temperature			T_J	+150	°C											
Operating Junction and Storage Temperature Range			T_{STG}	- 55 to +150	°C											
Note: 1. Single pulse, Pw = 300uS, Duty <= 2%																
Electrical Characteristics (Ta = 25 °C unless otherwise noted)																
Parameter		Conditions	Symbol	Min	Typ	Max	Unit									
Static																
Collector-Base Voltage	$I_C = 10mA, I_B = 0$		BV_{CBO}	700	--	--	V									
Collector-Emitter Breakdown Voltage	$I_C = 10mA, I_E = 0$		BV_{CEO}	400	--	--	V									
Emitter-Base Breakdown Voltage	$I_E = 1mA, I_C = 0$		BV_{EBO}	9	--	--	V									
Collector Cutoff Current	$V_{CB} = 700V, I_E = 0$		I_{CBO}	--	--	10	uA									
Emitter Cutoff Current	$V_{EB} = 9V, I_C = 0$		I_{EBO}	--	--	10	uA									
Collector-Emitter Saturation Voltage	$I_C / I_B = 1.5A / 0.5A$		$V_{CE(SAT)1}$	--	--	3	V									
	$I_C / I_B = 0.5A / 0.1A$		$V_{CE(SAT)2}$	--	--	0.8										
DC Current Gain	$V_{CE} = 2V, I_C = 0.43A$		h_{FE}	23	--	40										
	$V_{CE} = 2V, I_C = 1.0A$			8	--	40										
	$V_{CE} = 5V, I_C = 10uA$			6	--	40										
Frequency	$V_{CE} = 10V, I_C = 0.1A$		f_T	4			MHz									
Output Capacitance	$V_{CB} = 10V, f = 0.1MHz$		C_{ob}		21		pF									
Turn On Time	$V_{CC} = 125V, I_C = 1A,$ $I_{B1} = 0.2A, I_{B2} = - 0.2A,$ $R_L = 125ohm$		t_{ON}		1.1		uS									
Storage Time			t_{STG}			4	uS									
Fall Time			t_f			0.7	uS									

Note : pulse test: pulse width $\leq 300\mu S$, duty cycle $\leq 2\%$

Electrical Characteristics Curve

Figure 1. Static Characteristic

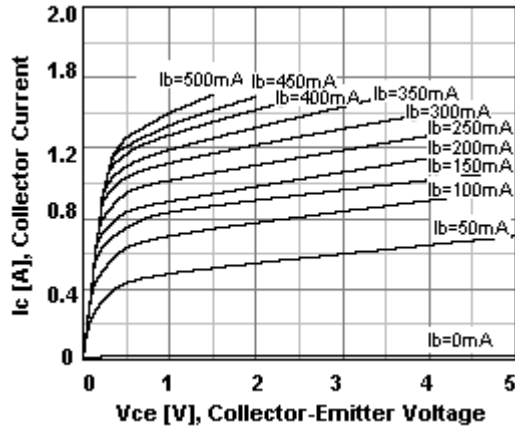


Figure 2. DC Current Gain

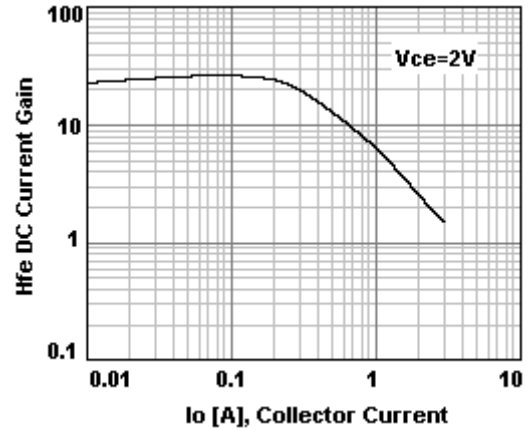


Figure 3. $V_{ce(sat)}$ v.s. $V_{be(sat)}$

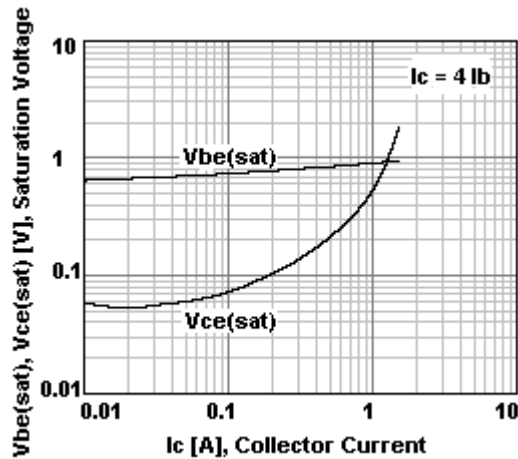


Figure 4. Switching Time

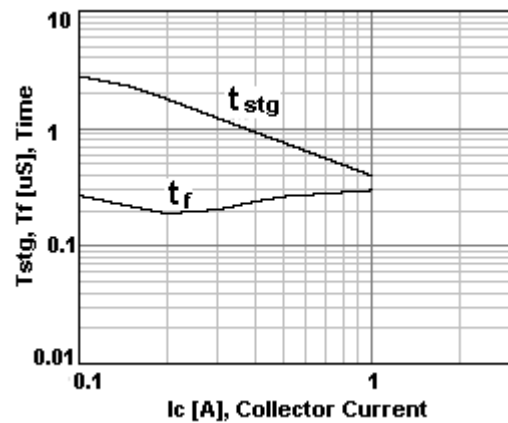


Figure 5. Safe Operating Area

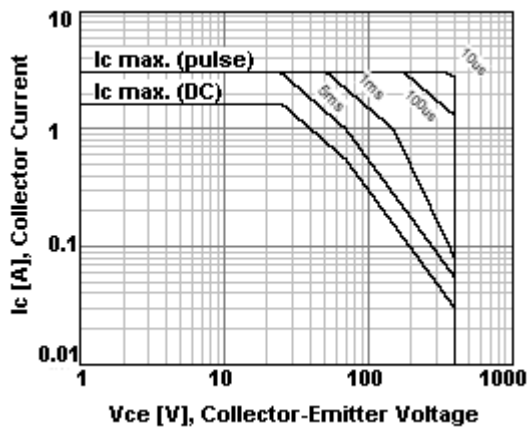
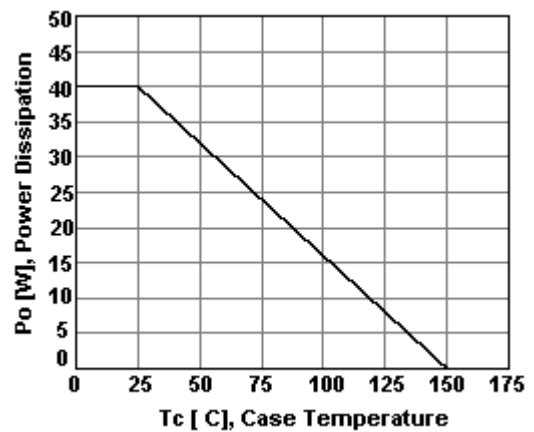
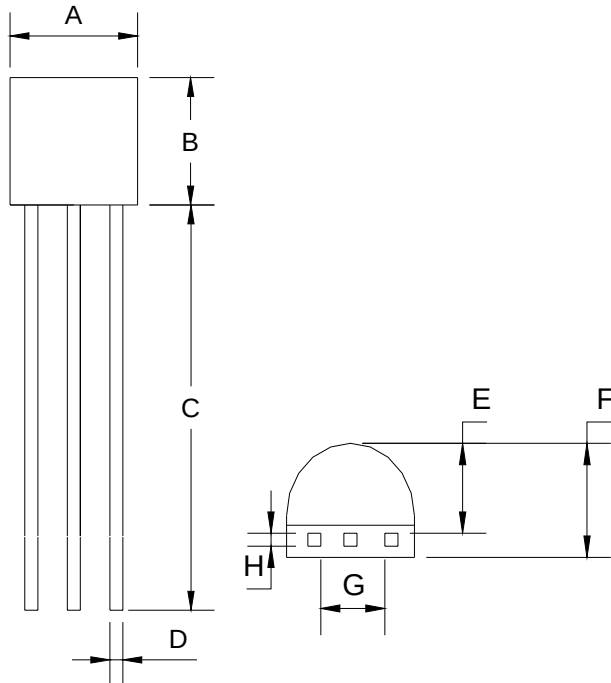


Figure 6. Power Derating



TO-92 Mechanical Drawing



TO-92 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	14.30(typ)		0.563(typ)	
D	0.43	0.49	0.017	0.019
E	2.19	2.81	0.086	0.111
F	3.30	3.70	0.130	0.146
G	2.42	2.66	0.095	0.105
H	0.37	0.43	0.015	0.017

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