

TO-220

Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CEO}	800V
BV_{CBO}	1200V
I_C	4A
$V_{CE(SAT)}$	3V @ $I_C / I_B = 2.5A / 0.5A$

Features

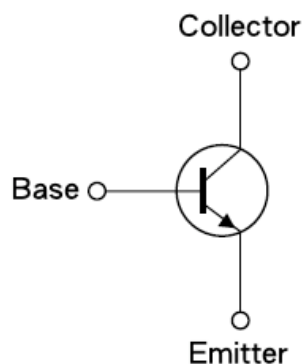
- High Voltage
- High Speed Switching

Structure

- Silicon Triple Diffused Type
- NPN Silicon Transistor

Ordering Information

Part No.	Package	Packing
TSC5327CZ C0	TO-220	50pcs / Tube

Block Diagram

Absolute Maximum Rating ($T_a = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	1200V	V
Collector-Emitter Voltage	V_{CEO}	800V	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	DC	4	A
	Pulse	10	
Base Current	DC	2	A
	Pulse	5	
Total Power Dissipation	P_D	50	W
Operating Junction Temperature	T_J	+150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_{STG}	- 55 to +150	$^\circ\text{C}$

Note: Single Pulse. $P_W = 300\mu\text{S}$, Duty $\leq 2\%$

Electrical Specifications ($T_a = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Collector-Base Voltage	$I_C = 1\text{mA}, I_B = 0$	BV_{CBO}	1200	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_E = 0$	BV_{CEO}	800	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 1\text{mA}, I_C = 0$	BV_{EBO}	7	--	--	V
Collector Cutoff Current	$V_{CE} = 800\text{V}, I_B = 0$	I_{CEO}	--	--	10	μA
Collector Cutoff Current	$V_{CB} = 1200\text{V}, I_E = 0$	I_{CBO}	--	--	1	mA
Emitter Cutoff Current	$V_{EB} = 7\text{V}, I_C = 0$	I_{EBO}	--	--	10	μA
Collector-Emitter Saturation Voltage	$I_C = 1.5\text{A}, I_B = 0.3\text{A}$	$V_{CE(SAT)1}$	---	--	0.6	V
Collector-Emitter Saturation Voltage	$I_C = 2.5\text{A}, I_B = 0.5\text{A}$	$V_{CE(SAT)2}$	---	--	2.0	V
Base-Emitter Saturation Voltage	$I_C = 1.5\text{A}, I_B = 0.3\text{A}$	$V_{BE(SAT)}$	--	--	1.5	V
DC Current Gain	$V_{CE} = 5\text{V}, I_C = 0.2\text{A}$	h_{FE}	20	--	40	
	$V_{CE} = 5\text{V}, I_C = 1\text{A}$		10	--	--	
	$V_{CE} = 5\text{V}, I_C = 2.5\text{A}$		5	--	--	
Dynamic						
Frequency	$V_{CE} = 10\text{V}, I_C = 0.2\text{A}$	f_T	--	15	--	MHz
Output Capacitance	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	C_{ob}	--	60	--	pF
Resistive Load Switching Time (Ratings)						
Rise Time	$V_{CC} = 250\text{V}, I_C = 1.5\text{A},$ $I_{B1} = 0.3, -I_{B2} = -0.6\text{A},$ $t_P = 25\mu\text{S}$	t_r		1.4	2	μS
Storage Time		t_{STG}	--	3	5	μS
Fall Time		t_f	--	0.2	0.4	μS

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

Electrical Characteristics Curve ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Figure 1. Static Characteristics

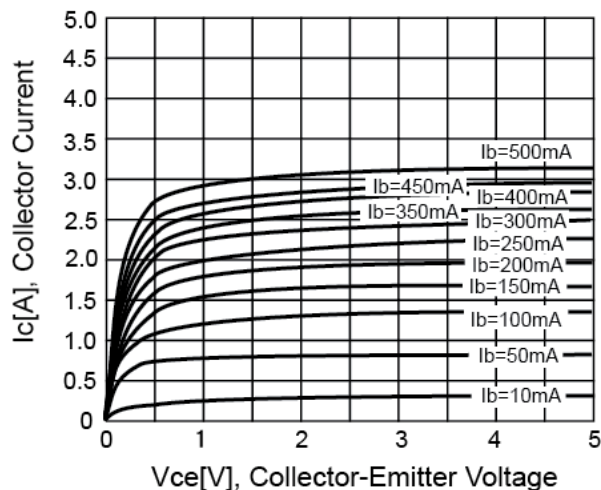


Figure 2. DC Current Gain

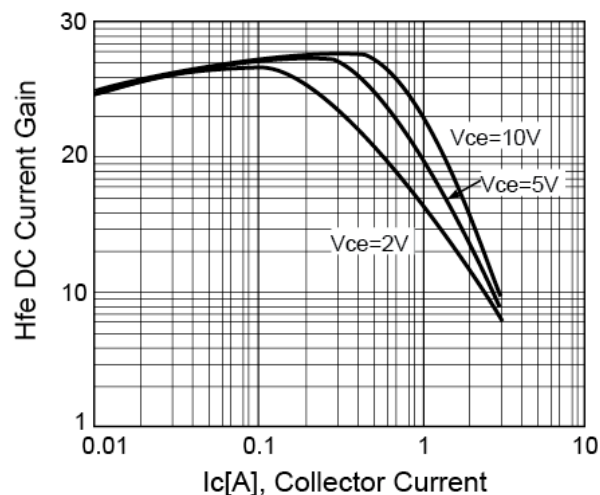


Figure 3. $V_{ce(sat)}$ v.s. $V_{be(sat)}$

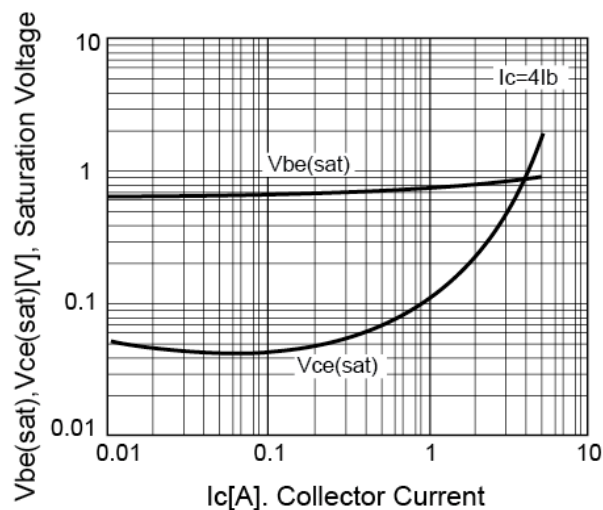
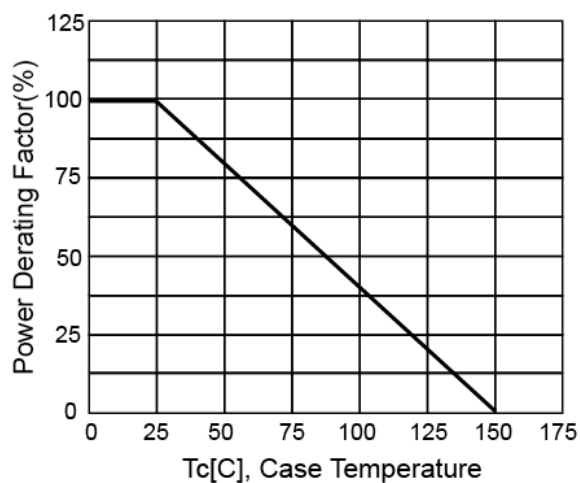
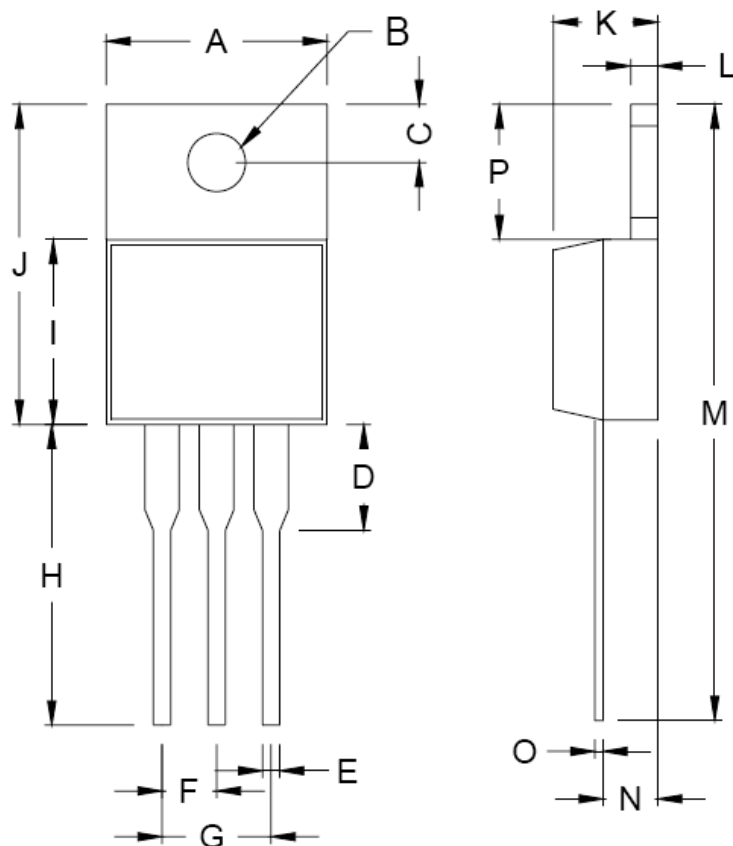


Figure 4. Power Derating



TO-220 Mechanical Drawing



DIM	TO-220 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	3.740	3.910	0.147	0.154
C	2.440	2.940	0.096	0.116
D	-	6.350	-	0.250
E	0.381	1.106	0.015	0.040
F	2.345	2.715	0.092	0.058
G	4.690	5.430	0.092	0.107
H	12.700	14.732	0.500	0.581
J	14.224	16.510	0.560	0.650
K	3.556	4.826	0.140	0.190
L	0.508	1.397	0.020	0.055
M	27.700	29.620	1.060	1.230
N	2.032	2.921	0.080	0.115
O	0.255	0.610	0.010	0.024
P	5.842	6.858	0.230	0.270