

### Pin Definition:

1. Base
2. Collector
3. Emitter

### PRODUCT SUMMARY

$BV_{CEO}$	420V
$BV_{CBO}$	1050V
$I_C$	5A
$V_{CE(SAT)}$	0.5V @ $I_C=1A, I_B=0.2A$

### Features

- High Voltage Capability
- High Switching Speed

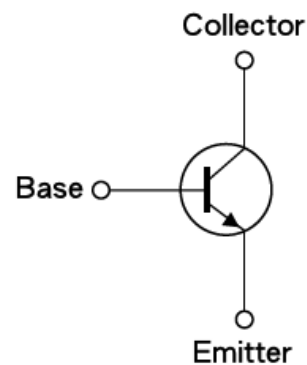
### Structure

- Silicon Triple Diffused Type
- NPN Silicon Transistor

### Ordering Information

Part No.	Package	Packing
TSC742CZ 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	$V_{CBO}$	1050	V
Collector-Emitter Voltage @ $V_{BE}=0V$	$V_{CES}$	420	V
Emitter-Base Voltage	$V_{EBO}$	15	V
Collector Current	$I_C$	5	A
Collector Peak Current ( $t_p < 5ms$ )	$I_{CM}$	8	A
Base Current	$I_B$	2	A
Base Peak Current ( $t_p < 5ms$ )	$I_{BM}$	4	A
Power Total Dissipation @ $T_c=25^\circ\text{C}$	$P_{DTOT}$	70	W
Maximum Operating Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^\circ\text{C}$

**Note:** Single Pulse.  $P_W = 300\mu s$ , Duty  $\leq 2\%$

### Thermal Performance

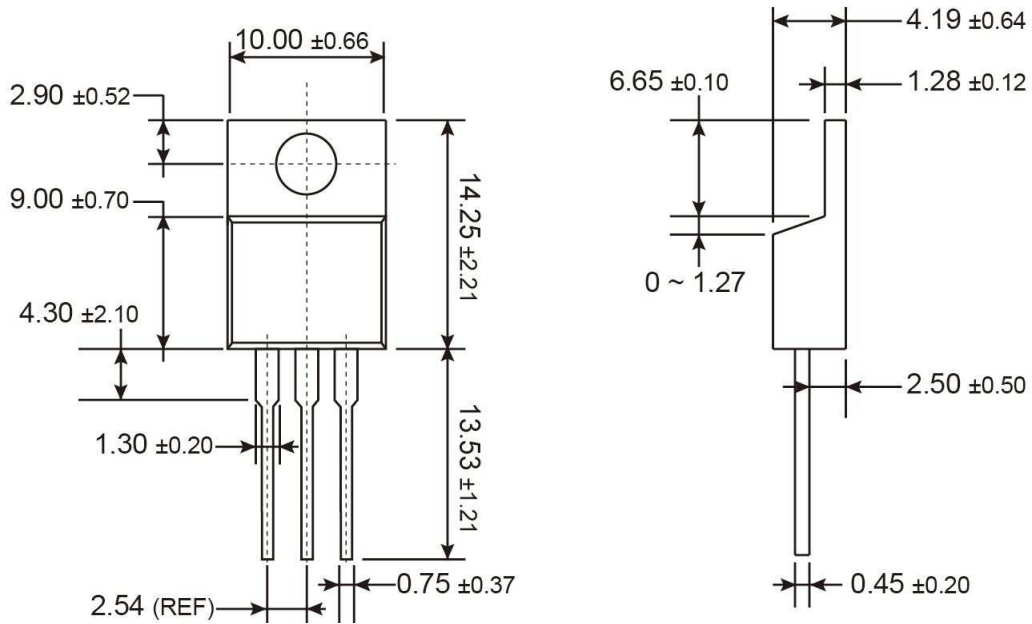
Parameter	Symbol	Limit	Unit
Thermal Resistance - Junction to Case	$R_{\theta_{JC}}$	1.8	$^\circ\text{C/W}$
Thermal Resistance - Junction to Ambient	$R_{\theta_{JA}}$	62.5	$^\circ\text{C/W}$

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
<b>Static</b>						
Collector-Base Voltage	$I_C = 0.5\text{mA}$	$BV_{CBO}$	1050	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}$	$BV_{CEO}$	420	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 1\text{mA}$	$BV_{EBO}$	15	--	--	V
Collector Cutoff Current	$V_{CE} = 400\text{V}, I_B = 0$	$I_{CEO}$	--	10	250	$\mu\text{A}$
Collector Cutoff Current	$V_{CB} = 950\text{V}, I_E = 0$	$I_{CBO}$	--	--	10	$\mu\text{A}$
Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 0.2\text{A}$	$V_{CE(SAT)1}$	---	0.15	0.5	V
Collector-Emitter Saturation Voltage	$I_C = 3.5\text{A}, I_B = 1\text{A}$	$V_{CE(SAT)2}$	---	1.2	1.5	V
Base-Emitter Saturation Voltage	$I_C = 3.5\text{A}, I_B = 1\text{A}$	$V_{BE(SAT)1}$	--	1.0	1.5	V
DC Current Gain	$V_{CE} = 5\text{V}, I_C = 0.1\text{A}$	$h_{FE}$	48	70	100	
	$V_{CE} = 3\text{V}, I_C = 0.8\text{A}$		23	28	50	
<b>Resistive Load Switching Time (Ratings)</b>						
Rise Time	$V_{CC} = 5\text{V}, I_C = 0.5\text{A},$ $t_P = 300\mu\text{s},$	$t_r$	--	--	1	$\mu\text{s}$
Storage Time		$t_{STG}$	4.5	5	5.5	$\mu\text{s}$
Fall Time		$t_f$	--	--	1.2	$\mu\text{s}$

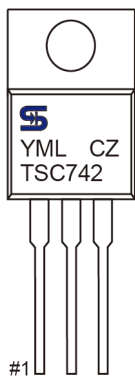
**Note:** Pulsed duration  $\leq 380\mu\text{s}$ , duty cycle  $\leq 2\%$

**TO-220 Mechanical Drawing**



Unit: Millimeters

**Marking Diagram**



- Y** = Year Code
- M** = Month Code  
(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apr, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
- L** = Lot Code

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