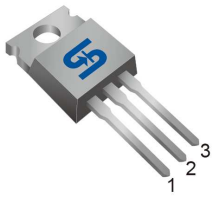
TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

TSC741

High Voltage Fast-Switching NPN Power Transistor

TO-220



Pin Definition:
1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CEO}	450V
BV_{CBO}	1050V
I_C	2A
$V_{CE(SAT)}$	0.5V @ I_C=0.7A, I_B=0.14A

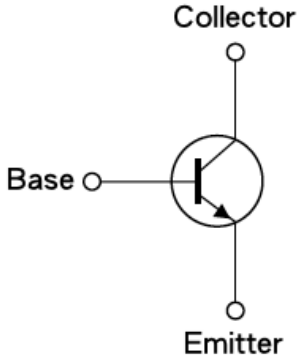
Features

- High Voltage Capability
- High Switching Speed

Structure

- Silicon Triple Diffused Type
- NPN Silicon Transistor

Block Diagram



Ordering Information

Part No.	Package	Packing
TSC741CZ C0	TO-220	50pcs / Tube

Absolute Maximum Rating (T_A = 25°C, unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	1050	V
Collector-Emitter Voltage @ V_{BE}=0V	V_{CES}	450	V
Emitter-Base Voltage	V_{EBO}	15	V
Collector Current	I_C	2	A
Collector Peak Current (tp <5ms)	I_{CM}	4	A
Base Current	I_B	1.5	A
Base Peak Current (tp <5ms)	I_{BM}	3	A
Power Total Dissipation @ Tc=25ºC	P_{DTOT}	60	W
Maximum Operating Junction Temperature	T_J	+150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Note: Single Pulse. P_W = 300uS, Duty ≤2%

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance - Junction to Case	$R\Theta_{JC}$	1.8	°C/W
Thermal Resistance - Junction to Ambient	$R\Theta_{JA}$	62.5	°C/W

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Electrical Specifications (T_A = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Collector-Base Voltage	I_C =0.5mA	BV_{CBO}	1050	--	--	V
Collector-Emitter Breakdown Voltage	I_C =5mA	BV_{CEO}	450	--	--	V
Emitter-Base Breakdown Voltage	I_E =1mA	BV_{EBO}	15	--	--	V
Collector Cutoff Current	V_{CE} =400V, I_B=0	I_{CEO}	--	10	250	uA
Collector Cutoff Current	V_{CB} =950V, I_E =0	I_{CBO}	--	--	10	uA
Collector-Emitter Saturation Voltage	I_C=0.7A, I_B =0.14A	$V_{CE(SAT)}1$	---	--	0.5	V
Collector-Emitter Saturation Voltage	I_C=2A, I_B =0.6A	$V_{CE(SAT)}2$	---	1.5	2.0	V
Base-Emitter Saturation Voltage	I_C=2A, I_B =0.6A	$V_{BE(SAT)}1$	--	1.0	1.5	V
DC Current Gain	V_{CE} =5V, I_C =100mA	$h_{FE}1$	50	70	100	
	V_{CE} =3V, I_C =500mA	$h_{FE}2$	18	24	50	
Resistive Load Switching Time (Ratings)						
Rise Time	V_{CC} =5V, I_C =0.5A,	t_r	--	--	1	uS
Storage Time		t_{STG}	2.5	3	3.5	uS
Fall Time		t_f	--	--	1.2	uS

Notes: Pulsed duration =380uS, duty cycle ≤2%

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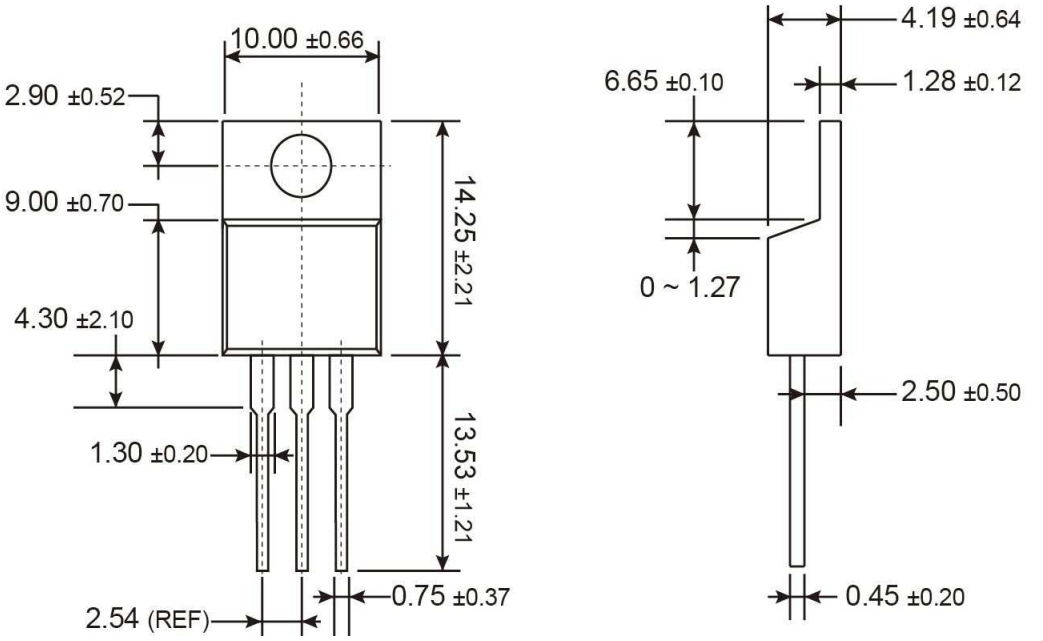
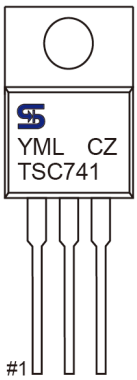
TO-220 Mechanical Drawing



Unit: Millimeters

Marking Diagram



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

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