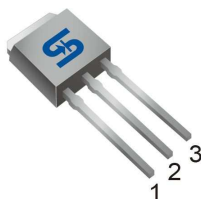


TO-251  
(IPAK)



TO-252  
(DPAK)



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

### PRODUCT SUMMARY

$BV_{CEO}$	450V
$BV_{CBO}$	1050V
$I_C$	5A
$V_{CE(SAT)}$	0.5V @ $I_C=1A, I_B=0.2A$

### Features

- High Voltage Capability
- High Switching Speed

### Structure

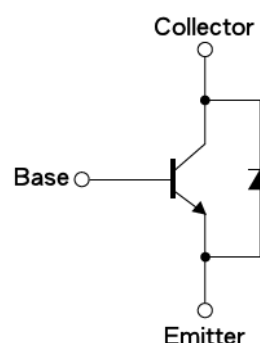
- Silicon Triple Diffused Type
- NPN Silicon Transistor

### Ordering Information

Part No.	Package	Packing
TSC5804DCH C5G	TO-251	75pcs / Tube
TSC5804DCP ROG	TO-252	2.5kpcs / 13" Reel

Note: "G" denote for Halogen Free Product

### Block Diagram



### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ , unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	1050	V
Collector-Emitter Voltage @ $V_{BE}=0V$	$V_{CES}$	450	V
Emitter-Base Voltage	$V_{EBO}$	15	V
Collector Current	$I_C$	5	A
Collector Peak Current ( $t_p < 5\text{ms}$ )	$I_{CM}$	8	A
Base Current	$I_B$	2	A
Base Peak Current ( $t_p < 5\text{ms}$ )	$I_{BM}$	4	A
Power Total Dissipation @ $T_c=25^\circ\text{C}$	$P_{DTOT}$	45	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.  $P_w = 300\mu\text{s}$ , Duty  $\leq 2\%$

### Thermal Performance

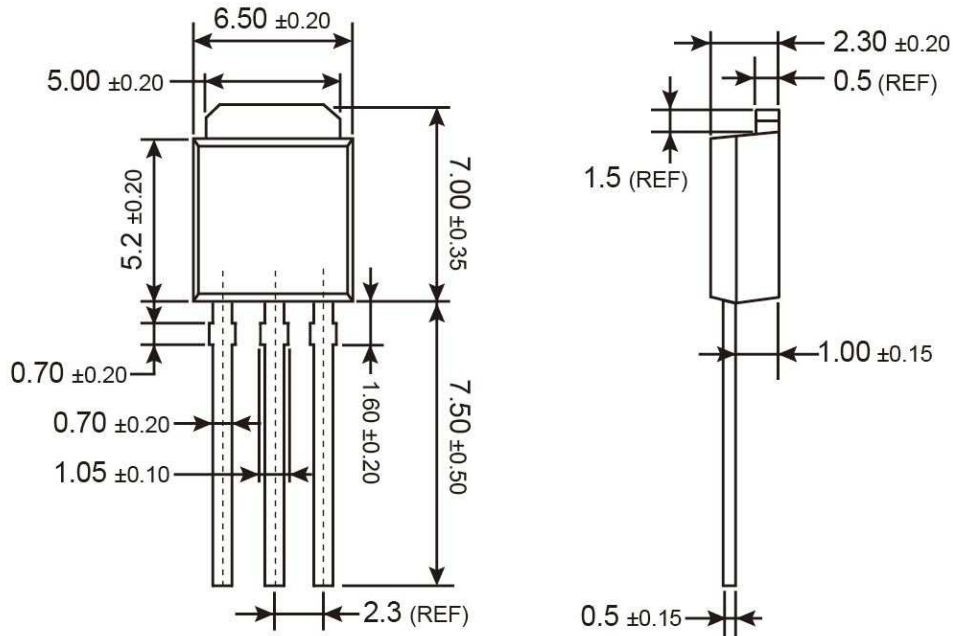
Parameter	Symbol	Limit	Unit
Thermal Resistance – Junction to Case	$R_{\theta_{JC}}$	2.78	$^\circ\text{C/W}$
Thermal Resistance - Junction to Ambient	$R_{\theta_{JA}}$	100	$^\circ\text{C/W}$

**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	$I_C = 5\text{mA}$	$BV_{CEO}$	450	--	--	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	$I_C = 1\text{A}, I_B = 0.2\text{A}$	$V_{CE(SAT)1}$	---	--	0.5	V
Collector-Emitter Saturation Voltage	$I_C = 3.5\text{A}, I_B = 1\text{A}$	$V_{CE(SAT)2}$	---	1.5	2.0	V
Base-Emitter Saturation Voltage	$I_C = 3.5\text{A}, I_B = 1\text{A}$	$V_{BE(SAT)1}$	--	1.1	1.5	V
DC Current Gain	$V_{CE} = 5\text{V}, I_C = 100\text{mA}$	$h_{FE1}$	50	70	100	
	$V_{CE} = 3\text{V}, I_C = 800\text{mA}$	$h_{FE2}$	25	30	50	
Diode Forward Voltage	$I_C = 2\text{A}$	$V_F$	--	--	1.5	V
<b>Resistive Load Switching Time (Ratings)</b>						
Rise Time	$V_{CC} = 5\text{V}, I_C = 0.5\text{A}$	$t_r$	--	--	1	$\mu\text{s}$
Storage Time		$t_{STG}$	4.5	5	5.5	$\mu\text{s}$
Fall Time		$t_f$	--	--	1.2	$\mu\text{s}$

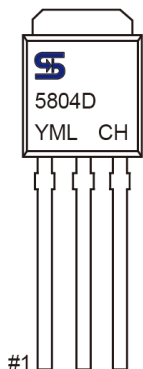
**Note:** Pulsed duration  $\leq 380\mu\text{s}$ , duty cycle  $\leq 2\%$

### TO-251 Mechanical Drawing



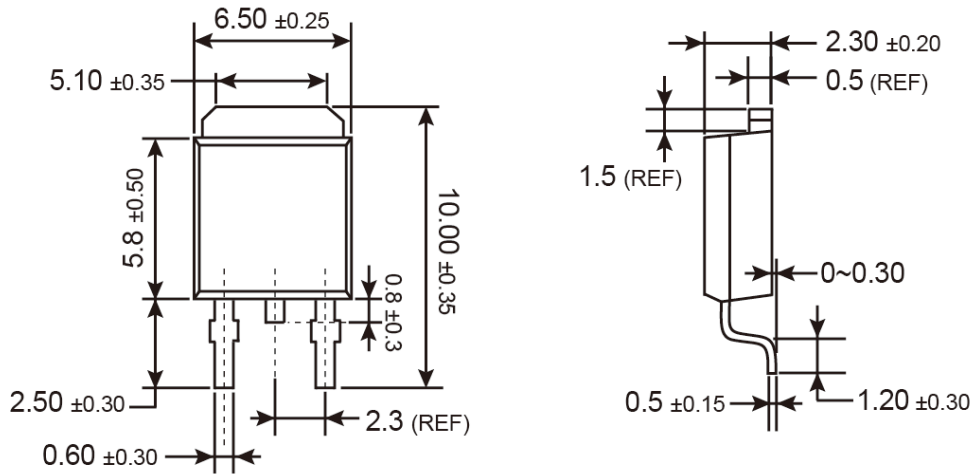
Unit: Millimeters

### Marking Diagram



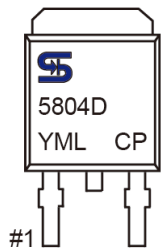
- Y** = Year Code
- M** = Month Code for Halogen Free Product  
(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apr, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
- L** = Lot Code

## TO-252 Mechanical Drawing



Unit: Millimeters

## Marking Diagram



- Y** = Year Code
- M** = Month Code for Halogen Free Product  
(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apr, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
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