

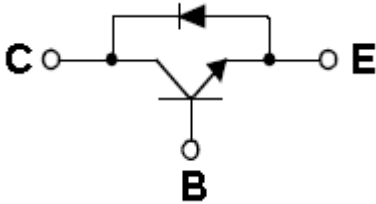
		<h1>TSC5305D</h1> <h2>High Voltage NPN Transistor with Diode</h2>										
<p>TO-220</p>  <p>1 2 3</p>	<p>TO-263</p>  <p>1 2 3</p>	<p>Pin assignment:</p> <ol style="list-style-type: none"> 1. Base 2. Collector 3. Emitter 	<p>$BV_{CEO} = 400V$</p> <p>$BV_{CBO} = 750V$</p> <p>$I_c = 5A$</p> <p>$V_{CE(SAT)}, = 1.2V @ I_c / I_b = 4A / 1A$</p>									
<p>Features</p> <ul style="list-style-type: none"> ✧ Built-in free-wheeling diode makes efficient anti saturation operation. ✧ No need to interest an hfe value because of low variable storage-time spread even though comer spirit product. ✧ Low base drive requirement. ✧ Suitable for half bridge light ballast applications. 		<p>Ordering Information</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Part No.</th> <th>Packing</th> <th>Package</th> </tr> </thead> <tbody> <tr> <td>TSC5305DCZ</td> <td>Tube</td> <td>TO-220</td> </tr> <tr> <td>TSC5305DCM</td> <td>T&R</td> <td>TO-263</td> </tr> </tbody> </table>		Part No.	Packing	Package	TSC5305DCZ	Tube	TO-220	TSC5305DCM	T&R	TO-263
Part No.	Packing	Package										
TSC5305DCZ	Tube	TO-220										
TSC5305DCM	T&R	TO-263										
<p>Structure</p> <ul style="list-style-type: none"> ✧ Silicon triple diffused type. ✧ NPN silicon transistor with Diode 		<p>Block Diagram</p> 										
<p>Absolute Maximum Rating ($T_a = 25^\circ C$ unless otherwise noted)</p>												
Parameter		Symbol	Limit	Unit								
Collector-Base Voltage		V_{CBO}	750V	V								
Collector-Emitter Voltage		V_{CEO}	400V	V								
Emitter-Base Voltage		V_{EBO}	10	V								
Collector Current	DC	I_c	5	A								
	Pulse		10									
Base Current	DC	I_b	2	A								
	Pulse		4									
Total Power Dissipation ($T_c=25^\circ C$)		P_D	75	W								
Operating Junction Temperature		T_J	+150	$^\circ C$								
Operating Junction and Storage Temperature Range		T_{STG}	- 65 to +150	$^\circ C$								
Thermal Resistance Junction to Case		$R_{\theta jc}$	1.65	$^\circ C/W$								
Thermal Resistance Junction to Ambient		$R_{\theta ja}$	65	$^\circ C/W$								

Note: 1. Single pulse, $P_w = 300\mu S$, Duty $\leq 2\%$

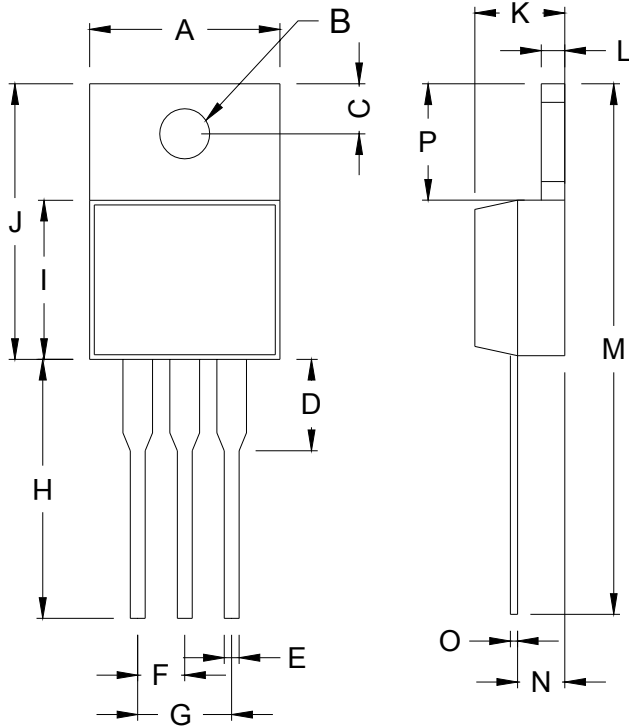


Electrical Characteristics						
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Collector-Base Voltage	$I_C = 1\text{mA}, I_B = 0$	BV_{CBO}	750	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_E = 0$	BV_{CEO}	400	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 1\text{mA}, I_C = 0$	BV_{EBO}	9	--	--	V
Collector Cutoff Current	$V_{CB} = 500\text{V}, I_E = 0$	I_{CBO}	--	--	10	μA
Emitter Cutoff Current	$V_{EB} = 9\text{V}, I_C = 0$	I_{EBO}	--	--	10	μA
Collector-Emitter Saturation Voltage	$I_C / I_B = 1.0\text{A} / 0.2\text{A}$	$V_{CE(SAT)1}$	--	--	0.3	V
	$I_C / I_B = 2.0\text{A} / 0.5\text{A}$	$V_{CE(SAT)2}$	--	--	0.5	
	$I_C / I_B = 4.0\text{A} / 1.0\text{A}$	$V_{CE(SAT)3}$	--	--	1.2	
Base-Emitter Saturation Voltage	$I_C / I_B = 1.0\text{A} / 0.2\text{A}$	$V_{CB(SAT)1}$	--	--	1.0	V
	$I_C / I_B = 2.0\text{A} / 0.5\text{A}$	$V_{CB(SAT)2}$	--	--	1.1	
DC Current Gain	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}$	h_{FE1}	15	20	--	
	$V_{CE} = 5\text{V}, I_C = 2\text{A}$	h_{FE2}	10	--	--	
Turn On Time	$V_{CC} = 250\text{V}, I_C = 2\text{A},$ $I_{B1} = I_{B2} = 0.4\text{A}, t_p = 25\mu\text{S}$ Duty cycle < 1%	t_{ON}	--	--	0.5	μS
Storage Time		t_{STG}	--	--	3	μS
Fall Time		t_F	--	--	0.2	μS
Doide						
Fall Time	$I_C = 3\text{A}$	t_F	--	--	700	nS
Forward Voltage	$I_C = 3\text{A}$	V_f	--	--	1.4	V

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

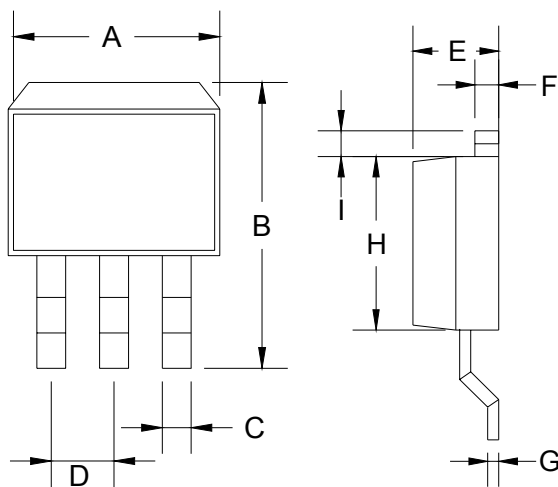


TO-220 Mechanical Drawing



TO-220 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	3.240	4.440	0.128	0.175
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
I	8.382	9.017	0.330	0.355
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

TO-263 Mechanical Drawing



TO-263 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	14.605	15.875	0.575	0.625
C	0.508	0.991	0.020	0.039
D	2.420	2.660	0.095	0.105
E	4.064	4.830	0.160	0.190
F	1.118	1.400	0.045	0.055
G	0.450	0.730	0.018	0.029
H	8.280	8.800	0.325	0.346
I	1.140	1.400	0.044	0.055
J	1.480	1.520	0.058	0.060