



**BDY23 – 180T2**  
**BDY24 – 181T2**  
**BDY25 – 182T2**

## NPN SILICON TRANSISTORS, DIFFUSED MESA

They are NPN transistors mounted in Jedec TO-3.  
 LF Large Signal Power Amplification.  
 High Current Fast Switching.  
 Compliance to RoHS.

### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$V_{CEO}$	Collector-Emitter Voltage	BDY23, 180T2	60	V
		BDY24, 181T2	90	
		BDY25, 182T2	140	
$V_{CBO}$	Collector-Base Voltage	BDY23, 180T2	60	V
		BDY24, 181T2	100	
		BDY25, 182T2	200	
$V_{EBO}$	Emitter-Base Voltage	BDY23, 180T2 BDY24, 181T2 BDY25, 182T2	10	V
$I_C$	Collector Current	BDY23, 180T2 BDY24, 181T2 BDY25, 182T2	6	A
$I_B$	Base Current	BDY23, 180T2 BDY24, 181T2 BDY25, 181T2	3	A
$P_{TOT}$	Power Dissipation	@ $T_C = 25^\circ$	87.5	Watts
$T_J$	Junction Temperature		-65 to +200	°C
$T_S$	Storage Temperature			

### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-C}$	Thermal Resistance, Junction to Case	2	°C/W

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**ELECTRICAL CHARACTERISTICS**

TC=25°C unless otherwise noted

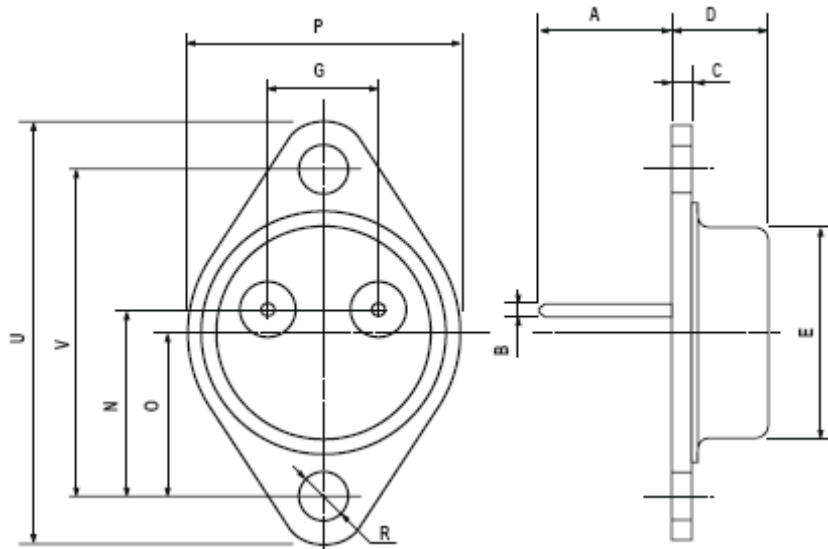
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$V_{CEO(BR)}$	Collector-Emitter Breakdown Voltage (*)	$I_C=50\text{ mA}$ $I_B=0$	BDY23, 180T2	60	-	-	V
			BDY24, 181T2	80	-	-	
			BDY25, 182T2	140	-	-	
$I_{CEO}$	Collector-Emitter Cutoff Current	$V_{CE}=60\text{ V}$	BDY23	-	-	1.0	mA
		$V_{CE}=90\text{ V}$	BDY24	-	-		
		$V_{CE}=140\text{ V}$	BDY25	-	-		
$I_{EBO}$	Emitter-Base Cutoff Current	$V_{EB}=10\text{ V}$	BDY23, 180T2	-	-	1.0	mA
			BDY24, 181T2				
			BDY25, 182T2				
$I_{CES}$	Collector-Emitter Cutoff Current	$V_{CE}=60\text{ V}$ $V_{BE}=0\text{ V}$	BDY23, 180T2	-	-	0.5	mA
		$V_{CE}=100\text{ V}$ $V_{BE}=0\text{ V}$	BDY24, 181T2	-	-	1.0	
		$V_{CE}=180\text{ V}$ $V_{BE}=0\text{ V}$	BDY25, 182T2	-	-	1.0	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=2.0\text{ A}$ , $I_B=0.25\text{ A}$	BDY23, 180T2	-	-	1	V
			BDY24, 181T2	-	-	0.6	
			BDY25, 182T2	-	-	0.6	
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (*)	$I_C=3\text{ mA}$	BDY23, 180T2	60	-	-	V
			BDY24, 181T2	100	-	-	
			BDY25, 182T2	200	-	-	
$V_{BE(SAT)}$	Base-Emitter Voltage (*)	$I_C=2.0\text{ A}$ , $I_B=0.25\text{ A}$	BDY23, 180T2	-	-	2.0	V
			BDY24, 181T2	-	-	1.2	
			BDY25, 182T2	-	-	1.2	
$h_{21E}$	Static Forward Current transfer ratio (*)	$V_{CE}=4\text{ V}$ $I_C=1\text{ A}$	A	-	55	-	-
			B	-	65	-	
			C	-	90	-	
		$V_{CE}=4\text{ V}$ $I_C=2\text{ A}$	A	15	20	45	
			B	30	45	90	
			C	75	82	100	
$f_T$	Transition Frequency	$V_{CE}=15\text{ V}$ , $I_C=0.5\text{ A}$ , $f=10\text{ MHz}$	10	-	-	MHz	
$t_d + t_r$	Turn-on time	$I_C=5\text{ A}$ , $I_B=1\text{ A}$	-	0.3	0.5	$\mu\text{s}$	
$t_s + t_f$	Turn-off time	$I_C=5\text{ A}$ , $I_{B1}=1\text{ A}$ , $I_{B2}=-0.5\text{ A}$	-	0.3	0.5	$\mu\text{s}$	

 (\*) Pulse Width  $\approx 300\ \mu\text{s}$ , Duty Cycle  $\angle 2.0\%$

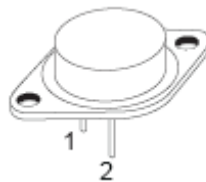
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**MECHANICAL DATA CASE TO-3**

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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