

## BDY55 – BDY56

### NPN SILICON TRANSISTORS, DIFFUSED MESA

LF Large Signal Power Amplification  
High Current Fast Switching

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
$V_{CEO}$	Collector-Emitter Voltage	BDY55	60	V
		BDY56	120	
$V_{CBO}$	Collector-Base Voltage	BDY55	100	V
		BDY56	150	
$V_{EBO}$	Emitter-Base Voltage	BDY55 BDY56	7	V
$I_C$	Collector Current	BDY55 BDY56	15	A
$I_B$	Base Current	BDY55 BDY56	7	A
$P_{TOT}$	Power Dissipation	@ $T_C = 25^\circ$ BDY55 BDY56	117	Watts
$T_J$	Junction Temperature	BDY55 BDY56	200	$^\circ\text{C}$
$T_s$	Storage Temperature	BDY55 BDY56	65 to +200	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
$R_{thJ-C}$	Thermal Resistance, Junction to Case	BDY55 BDY56	1.5	$^\circ\text{C/W}$

# BDY55 – BDY56

## ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
$V_{CEO(SUS)}$	Collector-Emitter Breakdown Voltage (*)	$I_C=200\text{ mA}, I_B=0$	<b>BDY55</b>	60	-	-	V
			<b>BDY56</b>	120	-	-	
$I_{CEO}$	Collector-Emitter Cutoff Current	$V_{CE}=30\text{ V}$	<b>BDY55</b>	-	-	0.7	mA
		$V_{CE}=60\text{ V}$	<b>BDY56</b>	-	-	0.5	
$I_{EBO}$	Emitter-Base Cutoff Current	$V_{EB}=7\text{ V}$	<b>BDY55</b>	-	-	5.0	mA
			<b>BDY56</b>	-	-	3.0	
$I_{CEX}$	Collector-Emitter Cutoff Current	$V_{CE}=100\text{ V}$ $V_{BE}=-1.5\text{ V}$	<b>BDY55</b>	-	-	5.0	mA
		$V_{CE}=100\text{ V}$ $V_{BE}=-1.5\text{ V}$ $T_{CASE}=150^\circ\text{C}$		-	-	30	
		$V_{CE}=150\text{ V}$ $V_{BE}=-1.5\text{ V}$	<b>BDY56</b>	-	-	3.0	
		$V_{CE}=150\text{ V}$ $V_{BE}=-1.5\text{ V}$ $T_{CASE}=150^\circ\text{C}$		-	-	30	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=4.0\text{ A}, I_B=0.4\text{ A}$	<b>BDY55</b> <b>BDY56</b>	-	-	1.1	V
		$I_C=10\text{ A}, I_B=3.3\text{ A}$	<b>BDY55</b> <b>BDY56</b>	-	-	2.5	
$V_{BE}$	Base-Emitter Voltage (*)	$I_C=4.0\text{ A}, V_{CE}=4.0\text{ V}$	<b>BDY55</b> <b>BDY56</b>	-	-	1.8	V
$h_{21E}$	Static Forward Current transfer ratio (*)	$V_{CE}=4\text{ V}, I_C=4\text{ A}$	<b>BDY55</b> <b>BDY56</b>	20	-	70	V
		$V_{CE}=4\text{ V}, I_C=10\text{ A}$	<b>BDY55</b> <b>BDY56</b>	10	-	-	
$f_T$	Transition Frequency	$V_{CE}=4.0\text{ V}, I_C=1.0\text{ A}, f=10\text{ MHz}$	<b>BDY55</b> <b>BDY56</b>	10	-	-	MHz

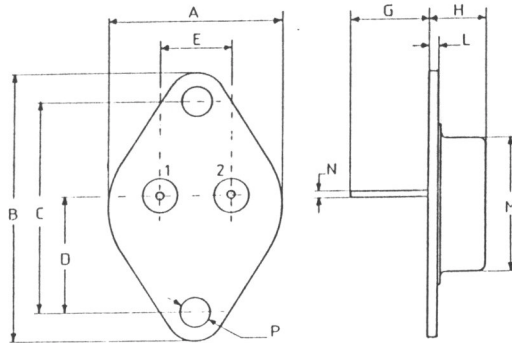
## BDY55 – BDY56

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit
$t_d + t_r$	Turn-on time	$I_C=5\text{ A}$ , $I_B=1\text{ A}$	-	-	0.5	$\mu\text{s}$
$t_s + t_f$	Turn-off time	$I_C=5\text{ A}$ , $I_{B1}=1\text{ A}$ , $I_{B2}=-0.5\text{ A}$	-	-	2	$\mu\text{s}$

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

### MECHANICAL DATA CASE TO-3

DIMENSIONS		
	mm	inches
A	25,45	1
B	38,8	1,52
C	30,09	1,184
D	17,11	0,67
E	9,78	0,38
G	11,09	0,43
H	8,33	0,32
L	1,62	0,06
M	19,43	0,76
N	1	0,04
P	4,08	0,16



Pin 1 :	Base
Pin 2 :	Collector
Case :	Emitter