



BDY90  
BDY91  
BDY92

# MULTIEPITAXIAL PLANAR NPN

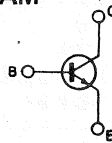
## HIGH CURRENT, HIGH SPEED TRANSISTORS

The BDY 90, BDY 91, BDY 92 are silicon multiepitaxial planar NPN transistors in Jedec TO-3 metal case intended for use in switching and linear applications in military and industrial equipment.

### ABSOLUTE MAXIMUM RATINGS

		BDY 90	BDY 91	BDY 92
$V_{CBO}$	Collector-base voltage ( $I_E = 0$ )	120V	100V	80V
$V_{CEV}$	Collector-emitter voltage ( $V_{BE} = -1.5V$ )	120V	100V	80V
$V_{CEO}$	Collector-emitter voltage ( $I_B = 0$ )	100V	80V	60V
$V_{EBO}$	Emitter-base voltage ( $I_C = 0$ )		6V	
$I_C$	Collector current		10A	
$I_{CM}$	Collector peak current		15A	
$I_B$	Base current		2A	
$P_{tot}$	Total power dissipation at $T_{case} \leq 25^\circ C$		60W	
$T_{stg}$	Storage temperature		-65 to 175°C	
$T_j$	Junction temperature		175°C	

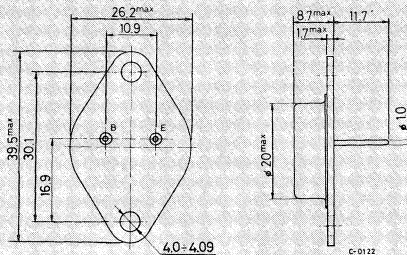
### INTERNAL SCHEMATIC DIAGRAM



### MECHANICAL DATA

Dimensions in mm

Collector connected to case



TO-3



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## THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	2.5	°C/W
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## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector cutoff current ( $I_E = 0$ )			1	mA
$I_{CEV}$	Collector cutoff current ( $V_{BE} = -1.5V$ )	$V_{CE} = V_{CEV\ max}$		1	mA
		$T_{case} = 150^{\circ}C$ $V_{CE} = V_{CEV\ max}$		3	mA
$I_{EBO}$	Emitter cutoff current ( $I_C = 0$ )			1	mA
$V_{CEO\ (sus)}$	*Collector-emitter sustaining voltage ( $I_B = 0$ )	$I_C = 100mA$ for <b>BDY 90</b> for <b>BDY 91</b> for <b>BDY 92</b>		120 100 80	V V V
$V_{CE\ (sat)}$	* Collector-emitter saturation voltage	$I_C = 5A$	$I_B = 0.5A$	0.5	V
		$I_C = 10A$	$I_B = 1A$	1.5	V
		for <b>BDY 90, BDY 91</b> for <b>BDY 92</b>		1	V
$V_{BE\ (sat)}$	* Base-emitter saturation voltage	$I_C = 5A$	$I_B = 0.5A$	1.2	V
		$I_C = 10A$	$I_B = 1A$	1.5	V
$h_{FE}$	* DC current gain	$I_C = 1A$	$V_{CE} = 2V$	35	—
		$I_C = 5A$	$V_{CE} = 5V$	30	120
		$I_C = 10A$	$V_{CE} = 5V$	20	—
$f_t$	Transition frequency	$I_C = 0.5A$ $f = 5MHz$	$V_{CE} = 5V$	70	MHz
$t_{on}$	Turn-on time	$I_C = 5A$ $V_{CC} = 30V$	$I_{B1} = 0.5A$	0.35	$\mu s$
$t_s$	Storage time	$I_C = 5A$ $V_{CC} = 30V$	$I_{B1} = -I_{B2} = 0.5A$	1.3	$\mu s$
$t_f$	Fall time			0.2	$\mu s$

\* Pulsed: pulse duration = 300 $\mu s$ , duty cycle  $\leq 2\%$ .