



**BDY57  
BDY58**

# MULTIEPITAXIAL PLANAR NPN

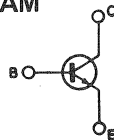
## HIGH CURRENT, HIGH SPEED, HIGH POWER TRANSISTORS

The BDY 57 and BDY 58 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 57	BDY 58
$V_{CBO}$	Collector-base voltage ( $I_E = 0$ )	120V	160V
$V_{CEO}$	Collector-emitter voltage ( $I_B = 0$ )	80V	125V
$V_{EBO}$	Emitter-base voltage ( $I_C = 0$ )		10V
$I_C$	Collector current		25A
$I_B$	Base current		6A
$P_{tot}$	Total power dissipation at $T_{case} \leq 25^\circ C$		175W
$T_{stg}$	Storage temperature		-65 to 200°C
$T_j$	Junction temperature		200°C

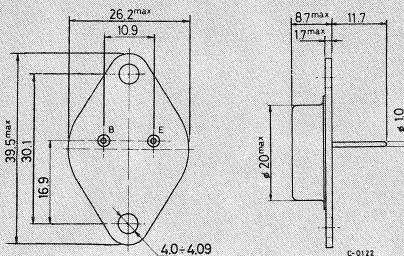
### INTERNAL SCHEMATIC DIAGRAM



### MECHANICAL DATA

Dimensions in mm

Collector connected to case



TO-3



**BDY57**  
**BDY58**

## THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	1	°C/W
------------------	----------------------------------	-----	---	------

## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector cutoff current ( $I_E = 0$ )	$V_{CB} = 120V$			1	mA
$I_{CER}$	Collector cutoff current	$V_{CE} = 80V$ $R_{BE} = 10\Omega$ $T_{case} = 100^{\circ}C$			10	mA
$I_{EBO}$	Emitter cutoff current ( $I_C = 0$ )	$V_{EB} = 10V$			0.5	mA
$V_{CEO(sus)}$	*Collector-emitter sustaining voltage	$I_C = 100mA$ for <b>BDY 57</b> for <b>BDY 58</b>	80		125	V V
$V_{(BR) CBO}$	*Collector-base breakdown voltage	$I_C = 5mA$ for <b>BDY 57</b> for <b>BDY 58</b>	120		160	V V
$V_{(BR) EBO}$	*Emitter-base breakdown voltage ( $I_C = 0$ )	$I_E = 5mA$	10			V
$V_{CE sat}$	*Collector-emitter saturation voltage	$I_C = 10A$ $I_B = 1A$	0.5	1.4		V
$V_{BE sat}$	*Base-emitter saturation voltage	$I_C = 10A$ $I_B = 1A$	1.4	2		V



**BDY57**  
**BDY58**

**ELECTRICAL CHARACTERISTICS** (continued)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
$h_{FE}^*$	DC current gain	$I_C = 10A$ $V_{CE} = 4V$	20		60	—
		$I_C = 20A$ $V_{CE} = 4V$		15		—
		$T_{case} = -30^\circ C$ $I_C = 10A$ $V_{CE} = 4V$	10			—
$f_T$	Transition frequency	$I_C = 1A$ $V_{CE} = 15V$ $f = 10MHz$	7			MHz
$t_{on}$	Turn-on time	$I_C = 15A$ $I_{B1} = 1.5A$			1	$\mu s$
$t_{off}$	Turn-off time	$I_C = 15A$ $I_{B1} = -I_{B2} = 1.5A$			2	$\mu s$
	Clamped $E_{s/b}$ Collector current	$V_{(clamp)} = 125V$ $L = 500\mu H$	15			A

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