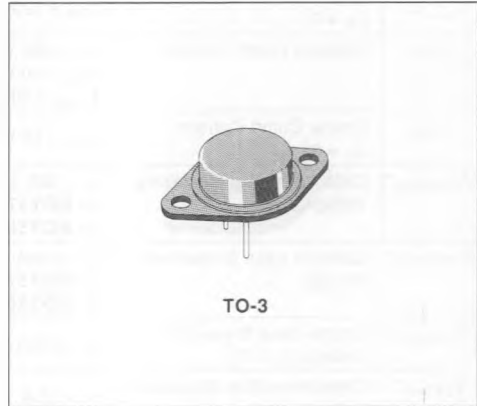
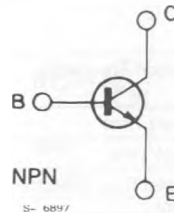


HIGH CURRENT, HIGH SPEED, HIGH POWER TRANSISTORS

DESCRIPTION

The BDY57 and BDY58 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.


INTERNAL SCHEMATIC DIAGRAM

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BDY57	BDY58	
V_{CBO}	Collector-base Voltage ($I_E = 0$)	120	160	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	80	125	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	10		V
I_C	Collector Current	25		A
I_B	Base Current	6		A
P_{Tot}	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$	175		W
T_{stg}	Storage Temperature	- 65 to 200		$^\circ\text{C}$
T_j	Junction Temperature	200		$^\circ\text{C}$

THERMAL DATA

$R_{th(j-case)}$	Thermal Resistance Junction-case	Max	1	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 120\text{ V}$				1	mA
I_{CER}	Collector Cutoff Current	$V_{CE} = 80\text{ V}$ $R_{BE} = 10\ \Omega$ $T_{case} = 100\text{ °C}$				10	mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 10\text{ V}$				0.5	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage	$I_C = 100\text{ mA}$ for BDY57 for BDY58		80 125			V V
$V_{(BR)CBO}^*$	Collector-base Breakdown Voltage	$I_C = 5\text{ mA}$ for BDY57 for BDY58		120 160			V V
$V_{(BR)EBO}^*$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = 5\text{ mA}$		10			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 10\text{ A}$	$I_B = 1\text{ A}$		0.5	1.4	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 10\text{ A}$	$I_B = 1\text{ A}$		1.4	2	V
h_{FE}^*	DC Current Gain	$I_C = 10\text{ A}$ $I_C = 20\text{ A}$ $T_{case} = -30\text{ °C}$ $I_C = 10\text{ A}$	$V_{CE} = 4\text{ V}$ $V_{CE} = 4\text{ V}$ $V_{CE} = 4\text{ V}$	20 15 10		60	
f_T	Transition Frequency	$I_C = 1\text{ A}$ $f = 10\text{ MHz}$	$V_{CE} = 15\text{ V}$	7			MHz
t_{on}	Turn-on Time	$I_C = 15\text{ A}$	$I_{B1} = 1.5\text{ A}$			1	μs
t_{off}	Turn-of Time	$I_C = 15\text{ A}$	$I_{B1} = -I_{B2} = 1.5\text{ A}$			2	μs
	Clamped $E_{s/b}$ Collector Current	$V_{(clamp)} = 125\text{ V}$ $L = 500\ \mu\text{H}$		15			A

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