

MULTIEPITAXIAL MESA NPN

2N6546
2N6547

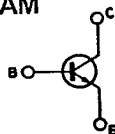
HIGH VOLTAGE, HIGH CURRENT POWER SWITCH

The 2N6546 and 2N6547 are multiepitaxial mesa NPN transistors in Jedec TO-3 metal case, intended in fast switching applications for high output power.

ABSOLUTE MAXIMUM RATINGS

		2N6546	2N6547
V_{CES}	Collector-emitter voltage ($V_{BE} = 0$)	650V	850V
V_{CEX}	(Clamped) Collector-emitter voltage ($V_{BE} = -5V$)	350V	450V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	300V	400V
V_{EBO}	Emitter-base voltage ($I_C = 0$)		9V
I_C	Collector current		15A
I_{CM}	Collector peak current		30A
I_B	Base current		10A
P_{tot}	Total power dissipation at $T_{case} \leq 25^\circ C$		175W
T_{stg}	Storage temperature		-65 to $200^\circ C$
T_J	Junction temperature		$200^\circ C$

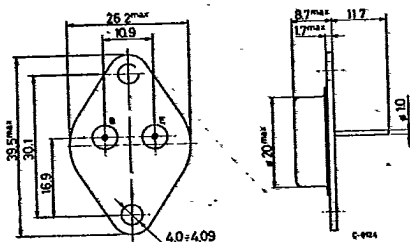
INTERNAL SCHEMATIC DIAGRAM



MECHANICAL DATA

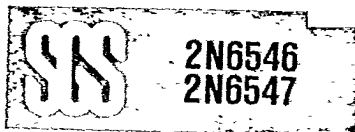
Dimensions in mm

Collector connected to case



TO-3

67C 15572 DT 33-15



THERMAL DATA

$R_{th j-case}$	Thermal resistance junction-case	max. 1. °C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CES} Collector cutoff current ($V_{BE} = 0$)	for 2N6546 $V_{CE} = 650\text{V}$			1	mA
	for 2N6547 $V_{CE} = 850\text{V}$			1	mA
	$T_{case} = 100^{\circ}\text{C}$				
	for 2N6546 $V_{CE} = 650\text{V}$			4	mA
	for 2N6547 $V_{CE} = 850\text{V}$			4	mA
I_{CER} Collector cutoff current ($R_{BE} = 50\Omega$)	$T_{case} = 100^{\circ}\text{C}$				
	for 2N6546 $V_{CE} = 650\text{V}$			5	mA
	for 2N6547 $V_{CE} = 850\text{V}$			5	mA
I_{EBO} Emitter cutoff current ($I_C = 0$)	$V_{EB} = 9\text{V}$			1	mA
$V_{CEO(sus)}$ *Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = 100\text{mA}$ for 2N6546 for 2N6547	300			V
		400			V
$V_{CEX(sus)}$ *Collector-emitter sustaining voltage (clamped $E_{S/B}$)	$I_C/I_B = 5$ $L = 180\mu\text{H}$ $V_{BE} = -5\text{V}$ $T_{case} = 100^{\circ}\text{C}$ $V_{clamp} = \text{rated } V_{CEX(sus)}$ $I_C = 8\text{A}$ for 2N6546 for 2N6547				
		350			V
		450			V
	$V_{clamp} = \text{rated } V_{CEO(sus)} - 100\text{V}$ $I_C = 15\text{A}$ for 2N6546 for 2N6547	200			V
		300			V
$I_{s/b}$ Second breakdown collector current	$t = 1\text{ s (non repetitive)}$ $V_{CE} = 100\text{V}$	0.2			A
$E_{s/b}$ Second breakdown energy	$L = 40\mu\text{H}$ $V_{BE} = -4\text{V}$ $R_{BE} = 50\Omega$	2			mJ

1643

E-14

822

2N6546
2N6547**ELECTRICAL CHARACTERISTICS (continued)**

Parameter	Test conditions	Min.	Typ.	Max.	Unit
h_{FE}^* DC current gain	$I_C = 5A$ $V_{CE} = 2V$ $I_C = 10A$ $V_{CE} = 2V$	12 6		60 30	— —
$V_{CE(sat)}^*$ Collector-emitter saturation voltage	$I_C = 10A$ $I_B = 2A$ $I_C = 15A$ $I_B = 3A$ $T_{case} = 100^\circ C$ $I_C = 10A$ $I_B = 2A$			1.5 5 2.5	V V V
$V_{BE(sat)}^*$ Base-emitter saturation voltage	$I_C = 10A$ $I_B = 2A$ $T_{case} = 100^\circ C$ $I_C = 10A$ $I_B = 2A$			1.6 1.6	V V
f_T Transition frequency	$I_C = 0.5A$ $V_{CE} = 10V$ $f = 1MHz$	6		24	MHz
C_{CBO} Collector-base capacitance	$V_{CB} = 10V$ $I_E = 0$ $f = 1MHz$			360	pF
t_{on} Turn-on time	RESISTIVE LOAD $V_{CC} = 250V$ $I_C = 10A$ $I_{B1} = -I_{B2} = 2A$			1	μs
t_s Storage time				4	μs
t_f Fall time				0.7	μs
t_s Storage time	INDUCTIVE LOAD $I_C = 10A$ (pk) $I_{B1} = 2A$ $V_{BE} = -5V$ $L = 180\mu H$ $T_{case} = 100^\circ C$ for 2N6546 $V_{clamp} = 350V$ for 2N6547 $V_{clamp} = 450V$			5	μs
t_f Fall time				1.5	μs

* Pulsed: pulse duration = $300\mu s$, duty cycle = 1.5%.
For characteristic curves see the BUW 45 type.