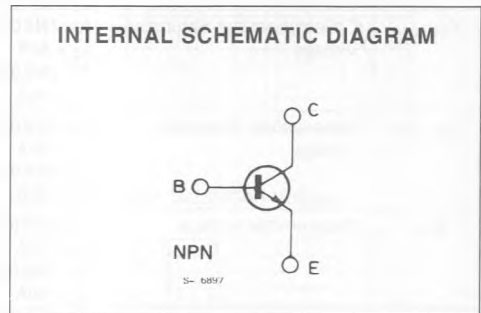
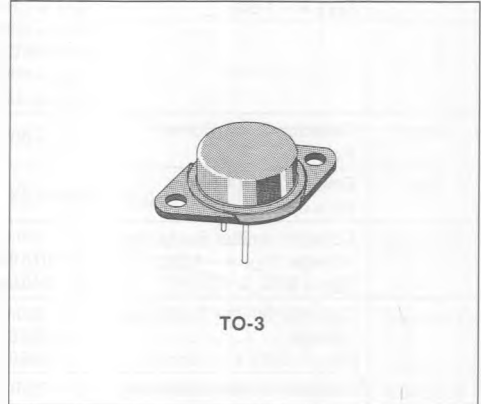


HIGH CURRENT HIGH SPEED HIGH POWER TRANSISTORS

DESCRIPTION

The 2N 6032 and 2N 6033 are silicon multiepitaxial planar NPN transistors in modified Jedec TO-3 metal case.

They have high current, high power handling capability, fast switching speed and are intended for use in switching and linear applications in military and industrial equipment.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	2N6032	2N6033	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	120	150	V
V_{CEX}	Collector-emitter Voltage ($V_{BE} = -1.5V$, $R_{BE} = 50\Omega$)	120	150	V
V_{CER}	Collector-emitter Voltage ($R_{BE} = 50\Omega$)	110	140	V
V_{CE0}	Collector-emitter Voltage ($I_B = 0$)	90	120	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7	7	V
I_C	Collector Current	50	40	A
I_B	Base Current	10		A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	140		W
T_{stg}	Storage Temperature	- 65 to 200		$^\circ C$
T_J	Junction Temperature	200		$^\circ C$

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	1.25	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

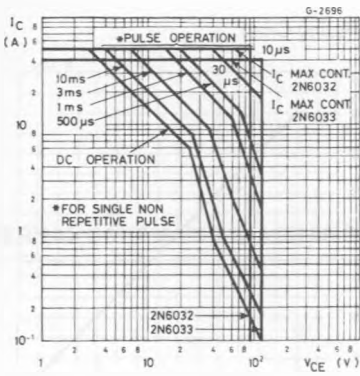
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cutoff Current ($V_{BE} = -1.5V$)	for 2N6032 $V_{CE} = 110V$ $V_{CE} = 100V$ for 2N6033 $V_{CE} = 135V$ $V_{CE} = 100V$ $T_{case} = 150^{\circ}C$			12 15 10 10	mA mA mA mA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	$V_{CE} = 80V$			10	mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 7V$			10	mA
$V_{CEX(sus)}^*$	Collector-emitter Sustaining Voltage ($V_{BE} = -1.5V$, $R_{BE} = 50\Omega$, $L = 2mH$)	$I_C = 200mA$ for 2N6032 for 2N6033	120 150			V V
$V_{CER(sus)}^*$	Collector-emitter Sustaining Voltage ($R_{BE} = 50\Omega$, $L = 15mH$)	$I_C = 200mA$ for 2N6032 for 2N6033	110 140			V V
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 200mA$ for 2N6032 for 2N6033	90 120			V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	for 2N6032 $I_C = 50A$ $I_B = 5A$ for 2N6033 $I_C = 40A$ $I_B = 4A$			1.3 1	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	for 2N6032 $I_C = 50A$ $I_B = 5A$ for 2N6033 $I_C = 40A$ $I_B = 4A$			2 2	V V
V_{BE}^*	Base-emitter Voltage	for 2N6032 $I_C = 50A$ $V_{CE} = 2V$ for 2N6033 $I_C = 40A$ $V_{CE} = 2V$			2 2	V V
h_{FE}^*	DC Current Gain	for 2N6032 $I_C = 50A$ $V_{CE} = 2.6V$ for 2N6033 $I_C = 40A$ $V_{CE} = 2V$	10 10		50 50	V V
h_{ie}	Small-signal Current Gain	$I_C = 2A$ $V_{CE} = 10V$ $f = 5\text{ MHz}$	10			
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 10V$ $f = 1\text{ MHz}$			800	pF

ELECTRICAL CHARACTERISTICS (continued)

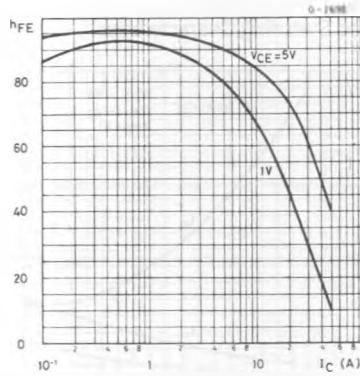
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_r	Rise Time	for 2N6032 $I_C = 50A$ $V_{CC} = 30V$ $I_{B1} = - I_{B2} = 5A$			1	μs
t_s	Storage Time	for 2N6033 $I_C = 40A$ $V_{CC} = 30V$ $I_{B1} = - I_{B2} = 4A$			1.5	μs
t_f	Fall Time				0.5	μs
$I_{s/b}^{**}$	Second Breakdown Collector Current	$V_{CE} = 24V$ $V_{CE} = 40V$	5.8 0.9			A A
$E_{s/b}$	Second Breakdown Energy	$V_{BE} = -4V$ $L = 310\mu H$ $R_{BE} = 5\Omega$	62			mJ

Pulsed : pulse duration = 300 μs , duty cycle = 1.5 %
 ** Pulsed : 1 s non repetitive pulse.

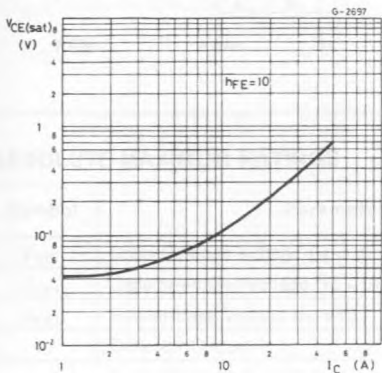
Safe Operating Areas.



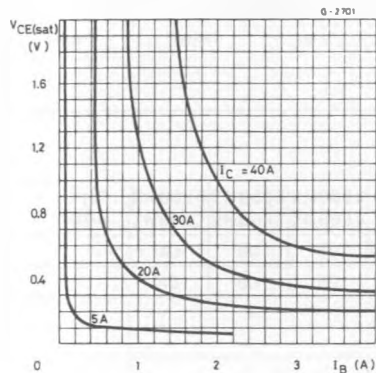
DC Current Gain.



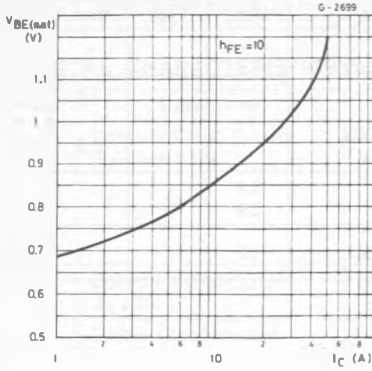
Collector-emitter Saturation Voltage.



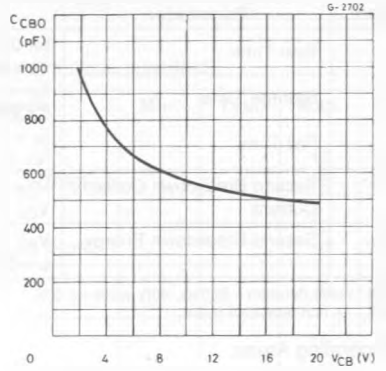
Collector-emitter Saturation Voltage.



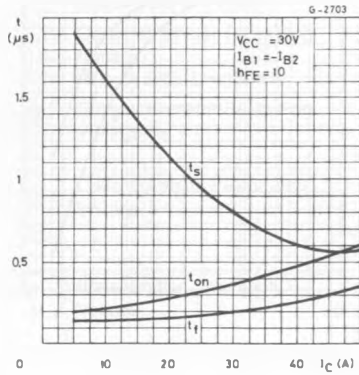
Base-emitter Saturation Voltage.



Collector-base Capacitance.



Saturated Switching Characteristics.



Power Rating Chart.

