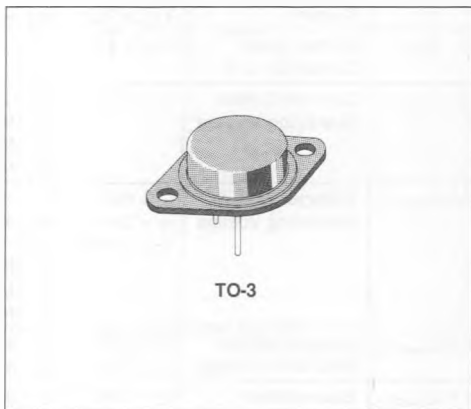
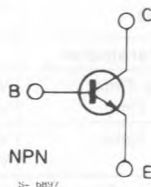


NPN HIGH VOLTAGE POWER TRANSISTORS

- SWITCHING REGULATORS
- INVERTERS
- SOLENOID AND RELAY DRIVERS
- MOTOR CONTROLS
- DEFLECTION CIRCUITS



INTERNAL SCHEMATIC DIAGRAM



DESCRIPTION

High voltage, high speed switching power transistors suited for use on the 220 and 380 V mains.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	2N6676	2N6677	2N6678	Unit
V_{CEV}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	450	550	650	V
V_{CEX}	Collector-emitter Voltage	350	400	450	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	300	350	400	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	8			V
I_C	Collector Current	15			A
I_{CM}	Collector Peak Current	20			A
I_B	Base Current	5			A
P_{tot}	Total Dissipation at $T_C < 25^\circ C$	175			W
T_{stg}	Storage Temperature	- 65 to 200			$^\circ C$
T_J	Max. Operating Junction Temperature	200			$^\circ C$

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1	$^{\circ}C/W$
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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	$V_{CE} = V_{CEV}$ $V_{BE} = -1.5V$ $V_{CE} = V_{CEV}$ $V_{BE} = -1.5V$ $T_c = 100^{\circ}C$			0.1 1	mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 8V$			2	mA
$V_{CEO(sus)}$ *	Collector Emitter Sustaining Voltage	$I_C = 0.2A$ $L_C = 25mH$ for 2N6676 for 2N6677 for 2N6678	300 350 400			V V V
$V_{CEX(sus)}$ *	Collector Emitter Sustaining Voltage	$I_C = 15A$ $L_C = 50\mu H$ $I_B = 3A$ $R_{BB} = 2\Omega$ $V_{BB} = -6V$ for 2N6676 for 2N6677 for 2N6678	350 400 450			V V V
$V_{CE(sat)}$ *	Collector-emitter Saturation Voltage	$I_C = 15A$ $I_S = 3A$ $I_C = 15A$ $I_B = 3A$ $T_c = 100^{\circ}C$			1 2	V
$V_{BE(sat)}$ *	Base-emitter Saturation Voltage	$I_C = 15A$ $I_B = 3A$			1.5	V
h_{FE} *	DC Current Gain	$I_C = 15A$ $V_{CE} = 3V$	8			
h_{fe}	Small Signal Current Gain	$I_C = 1A$ $V_{CE} = 10V$ $f = 5MHz$	3		10	

RESISTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_d	Delay Time	$V_{CC} = 200V$ $I_C = 15A$ $t_p = 20\mu s$			0.1	μs
t_r	Rise Time	$V_{BB} = -6V$ $I_{B1} = 3A$			0.6	μs
t_r	Rise Time	$V_{CC} = 200V$ $I_C = 15A$ $t_p = 20\mu s$ $V_{BB} = -6V$ $I_{B1} = 3A$ $T_c = 100^{\circ}C$			1	μs
t_s	Storage Time	$V_{CC} = 200V$ $I_C = 15A$ $t_p = 20\mu s$			2.5	μs
t_f	Fall Time	$V_{BB} = -6V$ $I_{B1} = -I_{B2} = 3A$			0.5	μs
t_s	Storage Time	$V_{CC} = 200V$ $I_C = 15A$ $t_p = 20\mu s$			4	μs
t_f	Fall Time	$V_{BB} = -6V$ $I_{B1} = -I_{B2} = 3A$ $T_c = 100^{\circ}C$			1	μs

INDUCTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_c	Crossover Time	$V_{CC} = 200V$ $I_C = 15A$ $L_C = 50\mu H$ $R_C = 13.5\Omega$ $I_{B1} = -I_{B2} = 3A$ $V_{clamp} = V_{CEX}$ $T_c = 25^{\circ}C$ $T_c = 100^{\circ}C$			0.5 0.8	μs μs

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

Figure 1 : Test Circuit RBSOA.

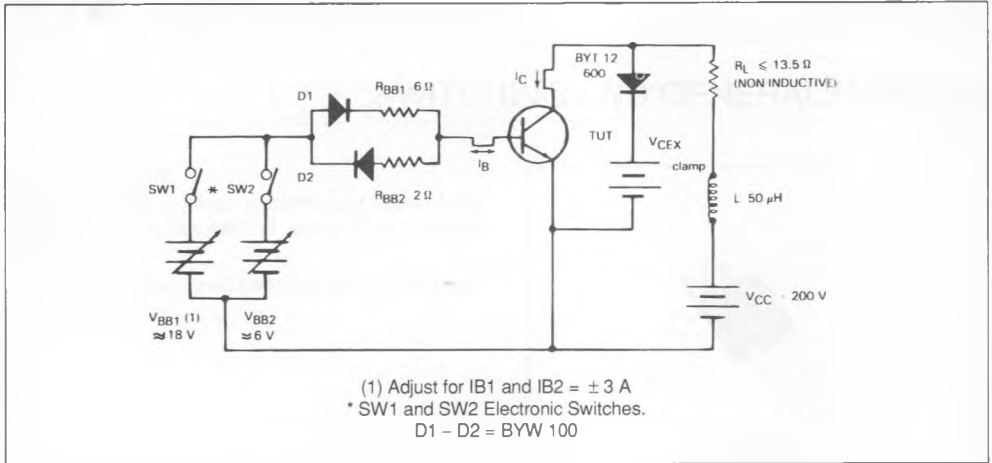


Figure 2 : Maximum Operating Conditions for Switching between Saturation and Cut-off.

