



ELECTRONICS, INC.
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NTE7092, NTE7093, NTE7094, NTE7095 Integrated Circuit Hybrid Voltage Regulator

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Peak Input Voltage, V_{IN}		
NTE7092	.....	950V
NTE7093, NTE7094, NTE7095	.....	550V
Input Current, I_{IN}		
NTE7092		
Continuous	.....	6A
Pulse	.....	12A
NTE7093, NTE7095	.....	6A
NTE7094		
Continuous	.....	10A
Pulse	.....	20A
Power Dissipation ($T_C = +100^\circ\text{C}$), P_D		
No Fin	.....	3W
$T_C = +100^\circ\text{C}$	.....	27W
Junction Temperature, T_J	.....	+150°C
Operating Temperature Range (Case Temperature, Note 1), T_{opr}	.....	-20° to +125°C
Storage Temperature Range, T_{stg}	.....	-30° to +125°C
Thermal Resistance, Junction-to-Case (Upper part of Junction Stem), R_{thJC}	.....	1.8°C/W

Note 1. Recommended Case Temperature: $T_C = +100^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Set Reference Voltage	V_{REF}	$I_{IN} = 40\text{mA}$, Note 2	7.00	7.15	7.30	V
Temperature Coefficient of Reference Voltage	K_{VREF}	$T_C = -20^\circ$ to $+100^\circ\text{C}$, $I_{IN} = 40\text{mA}$	-	-2	-	mV/°C
Power Transistor Characteristics						
Collector Saturation Voltage	$V_{CE(sat)}$	$I_C = 2\text{A}$, $I_B = 0.4\text{A}$	-	-	1.0	V
NTE7092						
NTE7093		$I_C = 5\text{A}$, $I_B = 1\text{A}$	-	-	0.3	V
NTE7094						
NTE7095	$I_C = 2\text{A}$, $I_B = 0.4\text{A}$	-	-	0.4	V	

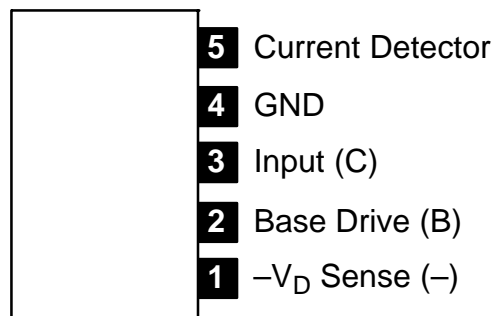
Note 2. The Off-line detecting control voltage is approximately 6V.

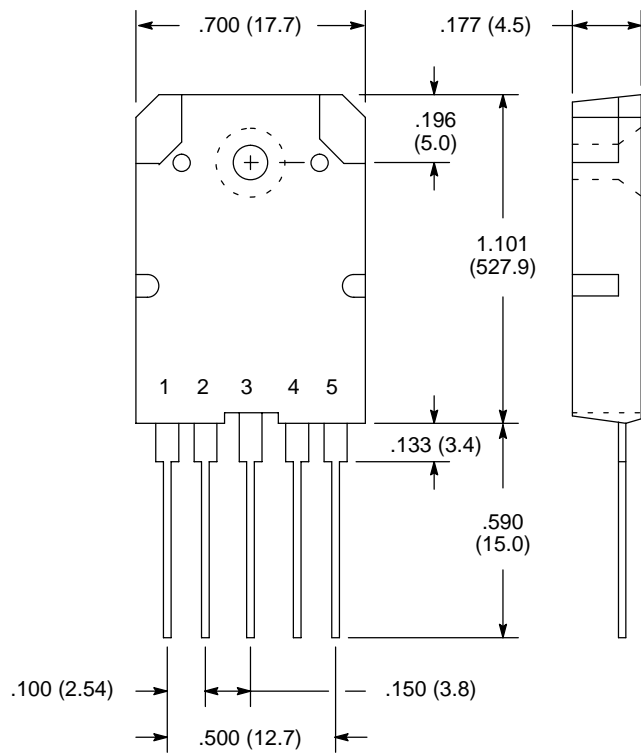
Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Transistor Characteristics (Cont'd)						
DC Current Gain NTE7092	h_{FE}	$V_{CE} = 4V, I_C = 1A$	10	–	30	
NTE7093			13	–	40	
NTE7094, NTE7095			15	–	40	
Collector Cutoff Current NTE7092	I_{CEX}	$V_{CE} = 950V, V_{BE} = 1.5V$	–	–	1	mA
NTE7093, NTE7094		$V_{CE} = 550V, V_{BE} = 1.5V$	–	–	1	mA
NTE7095		$V_{CE} = 900V, V_{BE} = 1.5V$	–	–	1	mA
Base–Emitter Voltage	$V_{EB(R)}$	$I_{EB(R)} = 100\mu A, \text{ Note 3}$	–	–	1	V
Base–Emitter Saturation Voltage NTE7092, NTE7093, NTE7095	$V_{BE(sat)}$	$I_C = 2A, I_B = 0.4A$	–	–	1.5	V
NTE7094		$I_C = 5A, I_B = 1A$	–	–	1.5	V
Switching Time NTE7092	t_s	$V_{CC} = 250V, I_C = 2A, I_{B1} = 0.15A, I_{B2} = 0.5A$	–	–	7	μs
	t_r		–	–	1	μs
NTE7093	t_s	$I_C = 2A, R_L = 50\Omega, I_{B1} = 0.3A, I_{B2} = -0.3A$	–	–	12	μs
	t_r		–	–	0.4	μs
NTE7094	t_s	$I_C = 3A, R_L = 33\Omega, I_{B1} = 0.5A, I_{B2} = -0.5A$	–	–	12	μs
	t_r		–	–	0.7	μs
NTE7095	t_s	$I_C = 3A, R_L = 83\Omega, I_{B1} = 0.4A, I_{B2} = -0.4A$	–	–	12	μs
	t_r		–	–	0.4	μs

Note 3. The reverse Bias Current (Pulse) of Base–Emitter is no more than 400mA.

Pin Connection Diagram
(Front View)





OR

