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High Voltage NPN Power Transistor for High Definition and New Super-Slim CRT Display

PRELIMINARY DATA

Features

- STATE-OF-THE-ART TECHNOLOGY: DIFFUSED COLLECTOR "ENHANCED GENERATION" EHVS1
- WIDER RANGE OF OPTIMUM DRIVE CONDITIONS
- LESS SENSITIVE TO OPERATING TEMPERATURE VARIATION

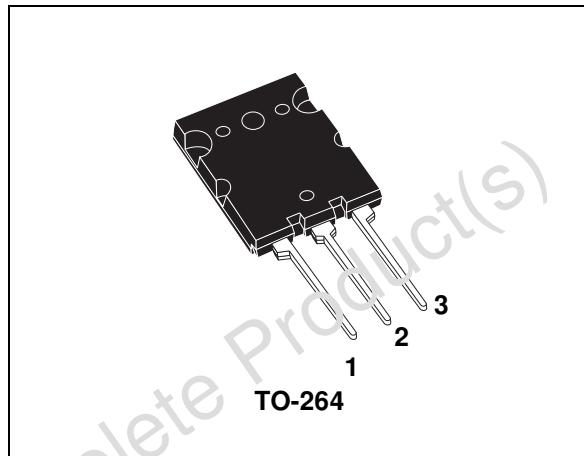
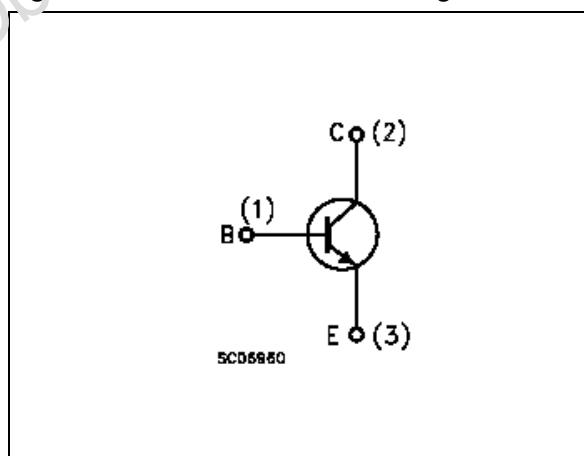
Applications

- HORIZONTAL DEFLECTION OUTPUT FOR DIGITAL TV, HDTV, AND HIGH-END MONITORS

Description

The device uses a Diffused Collector in Planar technology which adopts "Enhanced High Voltage Structure" (EHVS1) that was developed to fit High-Definition CRT displays.

The new HD product series features improved silicon efficiency, bringing updated performance to Horizontal Deflection output stages.

Figure 1. Package**Figure 2. Internal Schematic Diagram****Table 1. Order Codes**

Part Number	Marking	Package	Packing
HD1530JL	HD1530JL	TO-264	TUBE

Table 2. Absolute Maximum Rating

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	1500	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	700	V
V_{EBO}	Emitte-Base Voltage ($I_C = 0$)	10	V
I_C	Collector Current	26	A
I_{CM}	Collector Peak Current ($t_P < 5\text{ms}$)	40	A
I_B	Base Current	10	A
I_{BM}	Base Peak Current ($t_P < 5\text{ms}$)	20	A
P_{TOT}	Total dissipation at $T_c = 25^\circ\text{C}$	200	W
T_{STG}	Storage Temperature	-65 to 150	°C
T_J	Max. Operating Junction Temperature	150	°C

Table 3. Thermal Data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal Resistance Junction-Case	0.625	°C/W

Table 4. Electrical Characteristics ($T_{CASE} = 25^\circ\text{C}$; unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 1500\text{V}$ $V_{CE} = 150\text{V}$ $T_c = 125^\circ\text{C}$			0.2 2	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{V}$			10	μA
$V_{CEO(sus)}$ <i>Note: 1</i>	Collector-Emitter Susting Voltage ($I_B = 0$)	$I_C = 10\text{mA}$	700			V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 10\text{mA}$	10			V
$V_{CE(sat)}$ <i>Note: 1</i>	Collector-Emitter Saturation Voltage	$I_C = 13\text{A}$ $I_B = 3.25\text{A}$			2.5	V
$V_{BE(sat)}$ <i>Note: 1</i>	Base-Emitter Saturation Voltage	$I_C = 13\text{A}$ $I_B = 3.25\text{A}$		1	1.5	V
h_{FE}	DC Current Gain	$I_C = 1\text{A}$ $V_{CE} = 5\text{V}$ $I_C = 13\text{A}$ $V_{CE} = 5\text{V}$	5	28	8	
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 12\text{A}$ $f_h = 32\text{KHz}$ $I_{B(on)} = 1.5\text{A}$ $I_{B(off)} = -6.1\text{A}$		3.3 240		μs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 12\text{A}$ $f_h = 48\text{KHz}$ $I_{B(on)} = 2\text{A}$ $I_{B(off)} = -6.7\text{A}$		2.8 200		μs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 6.5\text{A}$ $f_h = 100\text{KHz}$ $I_{B(on)} = 0.9\text{A}$ $I_{B(off)} = -4.6\text{A}$		1.5 110		μs ns

Note: 1 Pulsed duration = 300 μs, duty cycle ≤ 1.5%.

Table 5. TO-264 Mechanical Data

DIM.	mm.			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.80		5.20	0.189		0.205
D	2.50		3.10	0.098		0.122
E	0.50	0.60	0.85	0.020	0.24	0.033
F	0.90	1.00	1.25	0.036	0.039	0.049
G	10.30		11.50	0.406		0.453
G1		5.45			0.215	
H	19.80		20.20	0.780		0.795
L3	25.80		26.20	1.016		1.031
L5	5.80		6.20	0.228		0.244
L7	19.50		20.50	0.768		0.807
N	2.30		2.70	0.091		0.106
R	4.7		5.10	0.185		0.201
DIA	3.10		3.50	0.122		0.138

Figure 3. TO-264 Drawing

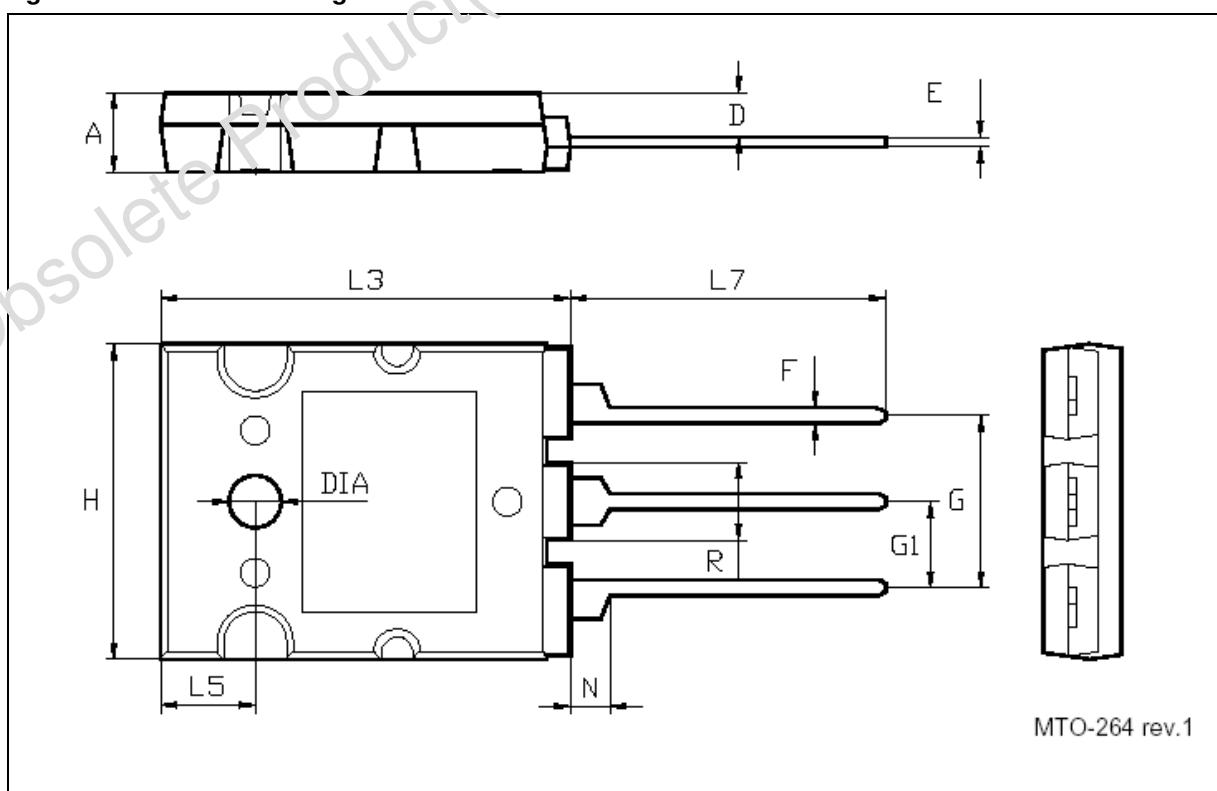


Table 6. Revision History

Date	Revision	Changes
05-July-2005	1	Initial release.

Obsolete Product(s) - Obsolete Product(s)

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