

Low $V_{CE(SAT)}$ PNP Transistor

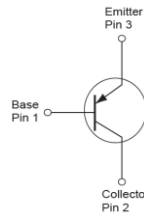
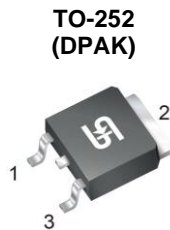
FEATURES

- Low $V_{CE(SAT)}$ -0.3V @ $I_C = -2A$, $I_B = -200mA$ (Typ.)
- Epitaxial Planar Type
- RoHS Compliant
- Halogen-free

APPLICATION

- Power Supply
- Low Speed Switching Applications

KEY PERFORMANCE PARAMETERS			
PARAMETER		VALUE	UNIT
BV_{CEO}		-30	V
BV_{CBO}		-50	V
I_C		-3	A
$V_{CE(SAT)}$	$I_C = -2A, I_B = -200mA$	-0.5	V



Notes: MSL 3 (Moisture Sensitivity Level) per J-STD-020

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise noted)				
PARAMETER		SYMBOL	LIMIT	UNIT
Collector-Base Voltage		V_{CBO}	-50	V
Collector-Emitter Voltage		V_{CEO}	-30	V
Emitter-Base Voltage		V_{EBO}	-6	V
Collector Current	DC	I_C	-3	A
	Pulse		-5 (note)	
Collector Power Dissipation	$T_A = 25^\circ C$	P_D	1.6	W
	$T_C = 25^\circ C$		8.9	
Operating Junction Temperature		T_J	+150	$^\circ C$
Operating Junction and Storage Temperature Range		T_{STG}	- 55 to +150	$^\circ C$

Note: Single pulse, $P_w \leq 350\mu s$, $Duty \leq 2\%$

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	75	$^\circ C/W$
Junction to Case Thermal Resistance	$R_{\theta JC}$	14	$^\circ C/W$

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$I_C = -50\mu\text{A}, I_E = 0$	BV_{CBO}	-50	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = -1\text{mA}, I_B = 0$	BV_{CEO}	-30	--	--	V
Emitter-Base Breakdown Voltage	$I_E = -50\mu\text{A}, I_C = 0$	BV_{EBO}	-5	--	--	V
Collector Cutoff Current	$V_{CB} = -20\text{V}, I_E = 0$	I_{CBO}	--	--	-1	μA
Emitter Cutoff Current	$V_{EB} = -5\text{V}, I_C = 0$	I_{EBO}	--	--	-1	μA
Collector-Emitter Saturation Voltage	$I_C = -2\text{A}, I_B = -200\text{mA}$	$*V_{CE(SAT)}$	--	-0.3	-0.5	V
Base-Emitter Saturation Voltage	$I_C = -2\text{A}, I_B = -200\text{mA}$	$*V_{BE(SAT)}$	--	-1	-2	V
DC Current Transfer Ratio	$V_{CE} = -2\text{V}, I_C = -1\text{A}$	$*h_{FE}$	100	--	500	
Transition Frequency	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$	f_T	--	190	--	MHz
Output Capacitance	$V_{CB} = -10\text{V}, f = 1\text{MHz}$	C_{ob}	--	35	--	pF

* Pulse Test: Pulse Width $\leq 380\mu\text{s}$, Duty Cycle $\leq 2\%$

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSB772CP ROG	TO-252 (DPAK)	2,500pcs / 13" Reel

ELECTRICAL CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$, unless otherwise noted)

Figure 1. $V_{CE(sat)}$ vs. I_C

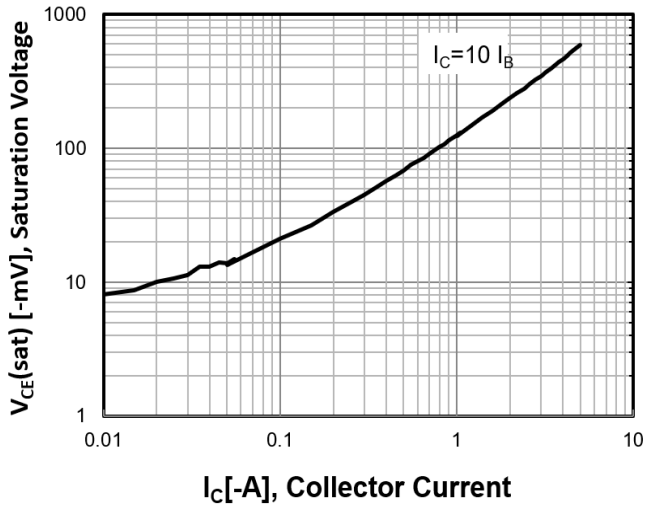


Figure 2. $V_{BE(sat)}$ vs. I_C

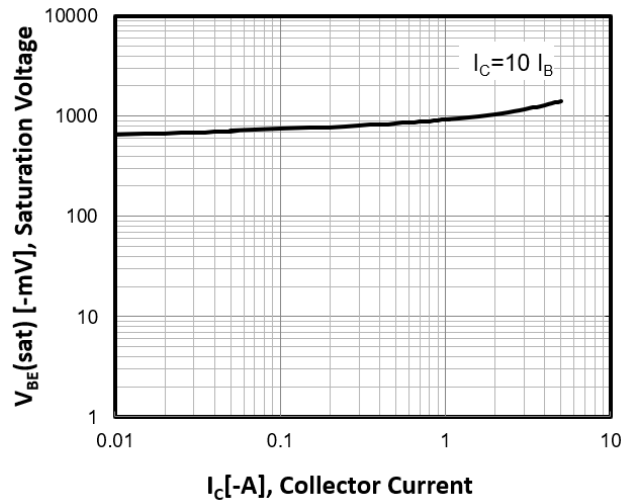


Figure 3. DC Current Gain

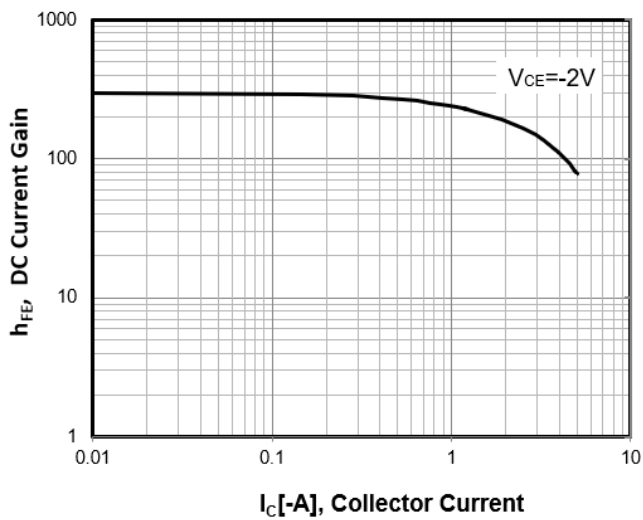
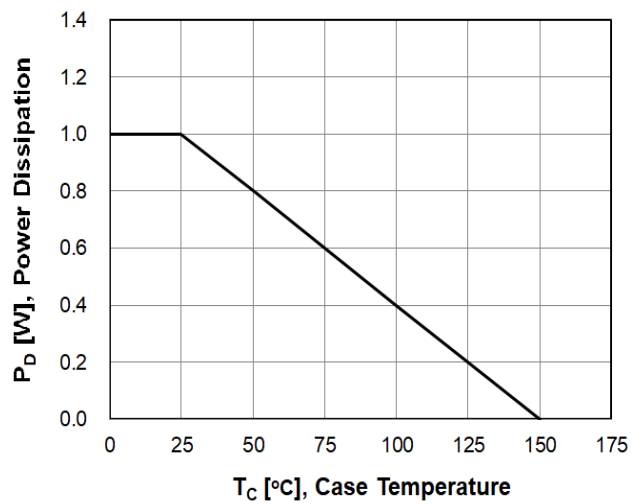
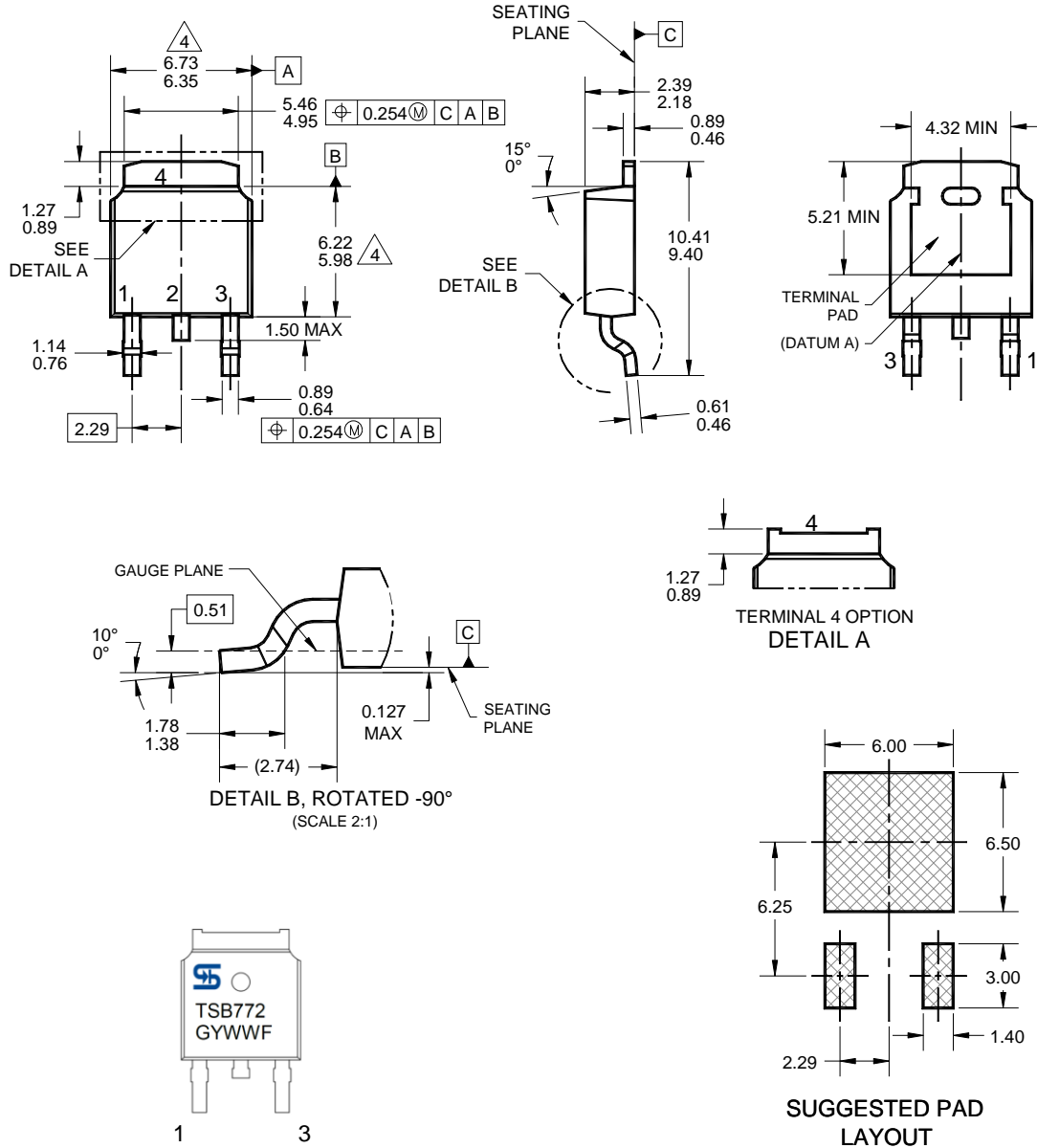


Figure 4. Power Derating



PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

TO-252



MARKING DIAGRAM

- G** = Halogen Free
- Y** = Year Code
- WW** = Week Code (01 ~ 52)
- F** = Factory Code

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC TO-252, VARIATION AA, ISSUE F.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSION, OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-TO252AA-013 REV B.

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