-500V High Voltage PNP Transistor

FEATURES

- Epitaxial Planar Type
- Low Saturation Voltages
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

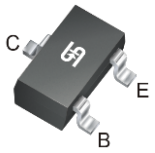
APPLICATION

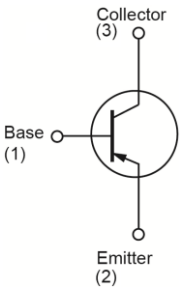
- Consumer electronics
- High voltage switching
- High voltage driver

KEY PERFORMANCE PARAMETERS			
PARAMETER		**VALUE**	**UNIT**
BV_{CBO}		-500	V
BV_{CEO}		-500	V
I_C		-150	mA
$V_{CE(SAT)}$	I_C=-50mA, I_B=-10mA	-0.5	V

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOT-23





Notes: MSL 1 (Moisture Sensitivity Level) per J-STD-020

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**LIMIT**	**UNIT**
Collector-Base Voltage	V_{CBO}	-500	V
Collector-Emitter Voltage	V_{CEO}	-500	V
Emitter-Base Voltage	V_{EBO-}	-5	V
Collector Current (DC)	I_C	-150	mA
Collector Peak Current (Pulse) Note	I_{CM}	-500	A
Power Total Dissipation @ T_A=25ºC	P_D	0.3	W
Maximum Operating Junction Temperature	T_J	+150	ºC
Storage Temperature Range	T_{STG}	-55 to +150	ºC

Note: Single pulse, Pw ≤ 380μs, Duty ≤ 2%

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**TYP**	**UNIT**
Junction to Ambient Thermal Resistance	$R_{\Theta JA}$	162	ºC/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER	**CONDITIONS**	**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Static (Note 1)						
Collector-Base Breakdown Voltage	I_C = -100uA, I_E = 0	BV_{CBO}	-500	--	--	V
Collector-Emitter Breakdown Voltage	I_C = -10mA, I_B = 0	BV_{CEO}	-500	--	--	V
Emitter-Base Breakdown Voltage	I_E = -100uA, I_C = 0	BV_{EBO}	-5	--	--	V
Collector Cutoff Current	V_{CB} = 120V, I_E = 0	I_{CBO}	--	--	-100	nA
Emitter Cutoff Current	V_{EB} = 6V, I_C = 0	I_{EBO}	--	--	-100	nA
Collector-Base Breakdown Voltage	I_C = -100uA, I_E = 0	BV_{CBO}	-500	--	--	V
Collector-Emitter Saturation Voltage	I_C = -20mA, I_B = -2mA	$V_{CE(SAT)}$ 1	--	--	-0.2	V
	I_C = -50mA, I_B = -10mA	$V_{CE(SAT)}$ 2		--	-0.5	
Base-Emitter Saturation Voltage	I_C = -50mA, I_B = -10mA	$V_{BE(SAT)}$	--	--	-0.9	V
Base-Emitter on Voltage	V_{CE} = -10V, I_C = -50mA	$V_{BE(ON)}$	--	--	-0.9	V
DC Current Transfer Ratio	V_{CE} = -10V, I_C = -1mA	h_{FE}^1	150	--	300	
	V_{CE} = -10V, I_C = -50mA	h_{FE}^2	80	--	300	
	V_{CE} = -10V, I_C = -100mA	h_{FE}^3	--	15	--	
Dynamic (Note 2)						
Transition Frequency	V_{CE} =10V, I_C=-100mA	f_T	--	50	--	MHz
Output Capacitance	V_{CB} = 20V, f=1MHz	Cob	--	--	8	pF
Turn On Time	V_{CE} = -100V, I_C = -50mA	t_{on}	--	110	--	ns
Turn Off Time	I_{B1}=-5mA, I_{B2}=-10mA	t_{off}	--	1500	--	ns

Note:

1. Pulse test: ≤380μs, duty cycle ≤2%
2. For DESIGN AID ONLY, not subject to production testing

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSA884CX RFG	SOT-23	3,000pcs / 7” Reel

ELECTRICAL CHARACTERICS CURVES (T_A=25°C, unless otherwise noted)

Figure 1. Static Characteristics

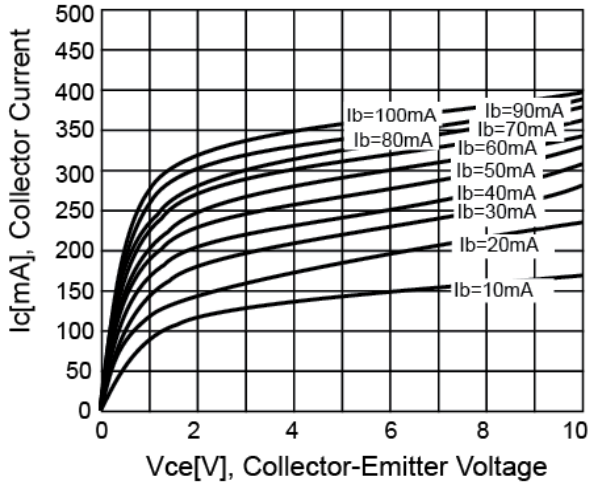


Figure 2. DC Current Gain

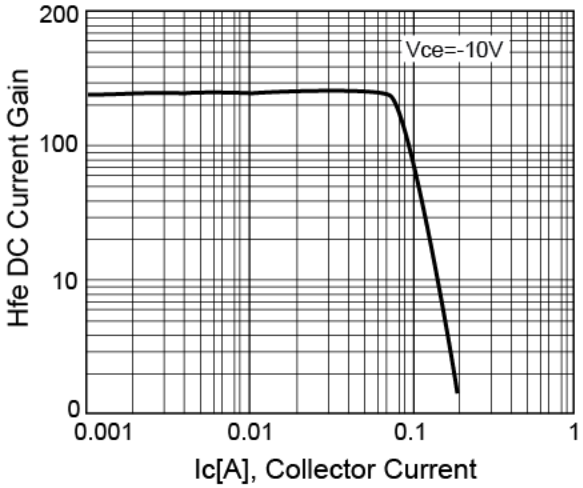


Figure 3. $V_{CE(sat)}$ vs. $V_{BE(sat)}$

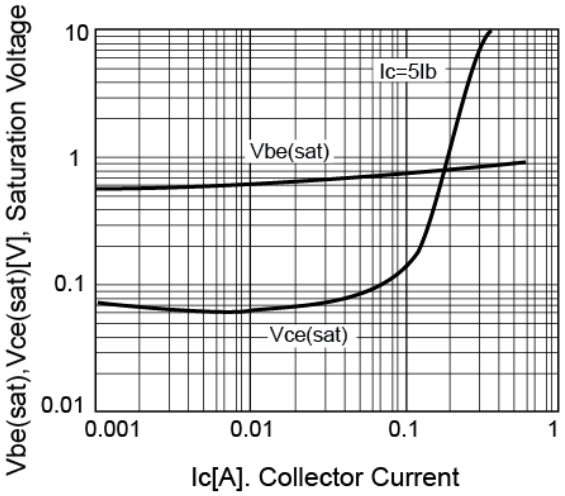
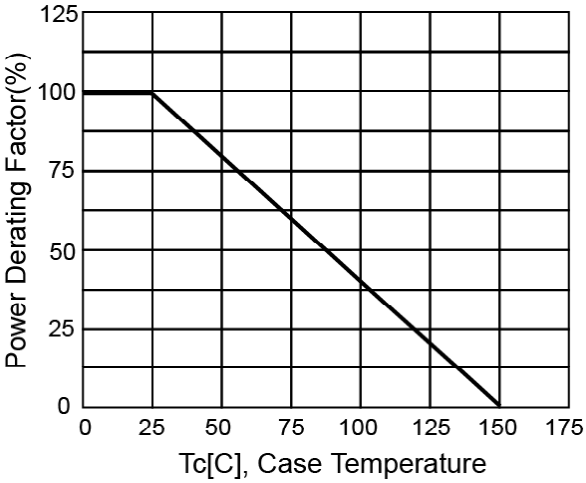
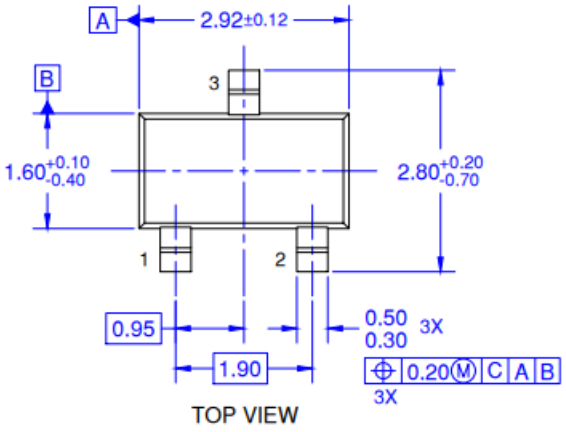


Figure 4. Power Derating

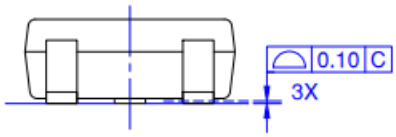


PACKAGE OUTLINE DIMENSIONS

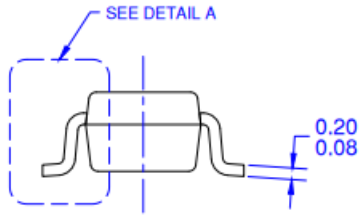
SOT-23



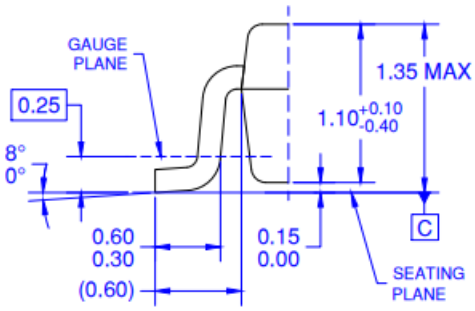
TOP VIEW



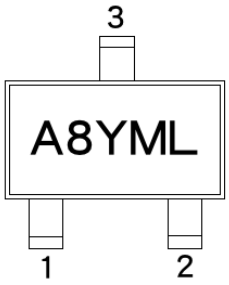
FRONT VIEW



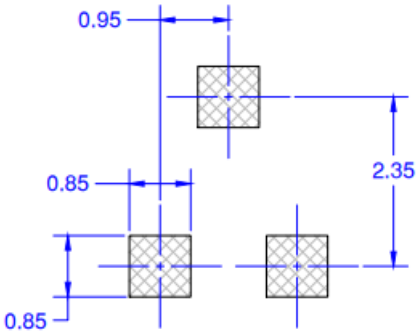
SIDE VIEW
(ROTATED -90°)



DETAIL A
(SCALE 2:1)



MARKING DIAGRAM



SUGGESTED PAD LAYOUT

A8 = Device Code

Y = Year Code

M = Month Code for Halogen Free Product

O	=Jan	**P**	=Feb	**Q**	=Mar	**R**	=Apr
S	=May	**T**	=Jun	**U**	=Jul	**V**	=Aug
W	=Sep	**X**	=Oct	**Y**	=Nov	**Z**	=Dec

L = Lot 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-236, ISSUE H, VARIATION AA.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO REF: HQ2SD07-025 REV A.

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