

General Purpose PNP Transistor

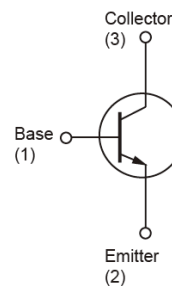
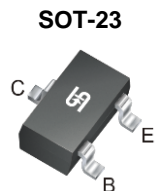
FEATURES

- Low $V_{CE(SAT)}$ -0.4 @ $I_C / I_B = -150mA / -15mA$
- PNP Silicon Transistor
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATION

- Consumer electronics
- General purpose amplification

KEY PERFORMANCE PARAMETERS			
PARAMETER		VALUE	UNIT
BV_{CBO}		-60	V
BV_{CEO}		-60	V
I_C		-0.6	A
$V_{CE(SAT)}$	$I_C = -150mA, I_B = -15mA$	-0.4	V



Notes: MSL 1 (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}	-60	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-0.6	A
Collector Power Dissipation	P_D	225	mW
Operating Junction Temperature	T_J	+150	$^\circ C$
Operating Junction and Storage Temperature Range	T_{STG}	- 55 to +150	$^\circ C$

Note: Single pulse, $P_w \leq 380\mu s$, Duty $\leq 2\%$

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	556	$^\circ C/W$

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

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static (Note 1)						
Collector-Base Breakdown Voltage	$I_C = -10\mu\text{A}, I_E = 0$	BV_{CBO}	-60	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = -10\text{mA}, I_B = 0$	BV_{CEO}	-60	--	--	V
Emitter-Base Breakdown Voltage	$I_E = -10\mu\text{A}, I_C = 0$	BV_{EBO}	-5	--	--	V
Collector Cutoff Current	$V_{CB} = -50\text{V}, I_E = 0$	I_{CBO}	--	--	-10	nA
Emitter Cutoff Current	$V_{EB} = -0.5\text{V}, V_{CE} = -30\text{V}$	I_{EBO}	--	--	-50	nA
Collector-Emitter Saturation Voltage	$I_C/I_B = -150\text{mA} / -15\text{mA}$	$*V_{CE(SAT)}$	--	--	-0.4	V
Base-Emitter Saturation Voltage	$I_C/I_B = -500\text{mA} / -50\text{mA}$	$*V_{BE(SAT)}$	--	--	-1.3	V
DC Current Transfer Ratio	$V_{CE} = -10\text{V}, I_C = -0.1\text{A}$	$*h_{FE1}$	75	--	--	
	$V_{CE} = -10\text{V}, I_C = -150\text{mA}$	$*h_{FE2}$	100	--	300	
Transition Frequency	$V_{CE} = -5\text{V}, I_C = -50\text{mA}, f = 100\text{MHz}$	f_T	200	--	--	MHz
Output Capacitance	$V_{CB} = -10\text{V}, f = 1\text{MHz}$	C_{ob}	--	--	8	pF

Note: Pulse test: $\leq 380\mu\text{s}$, duty cycle $\leq 2\%$

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSA1036CX RFG	SOT-23	3,000pcs / 7" Reel

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

Figure 1. DC Current Gain

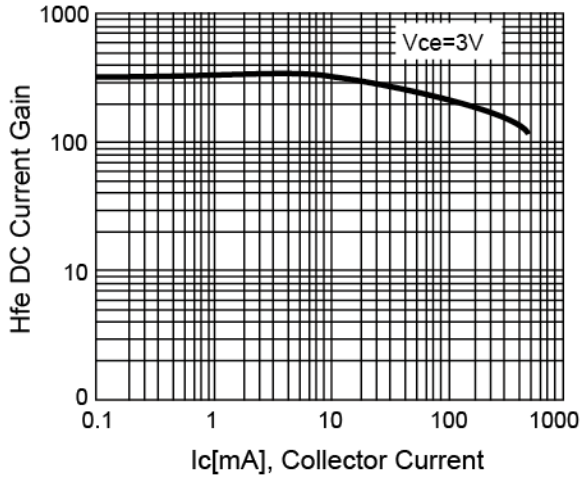


Figure 2. $V_{CE(SAT)}$ v.s. Ic

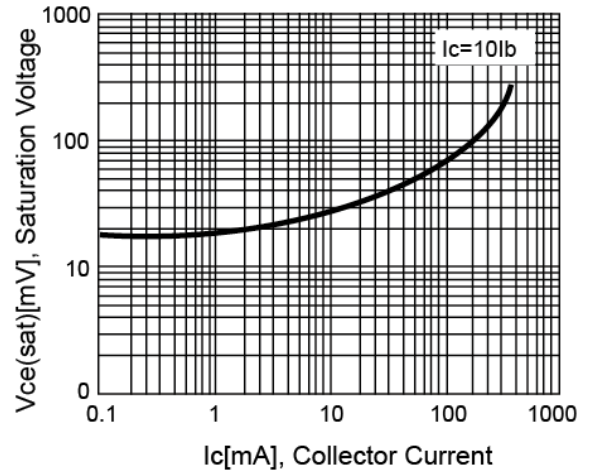


Figure 3. $V_{BE(SAT)}$ v.s. Ic

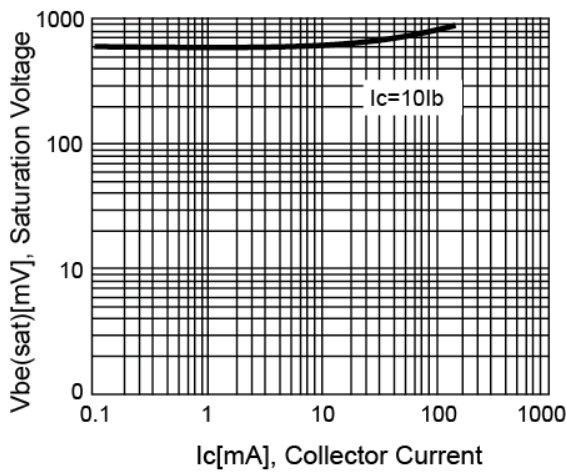


Figure 4. Cutoff Frequency vs. Ic

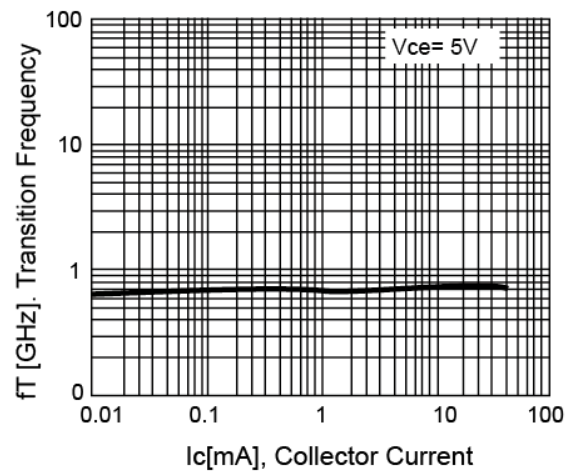
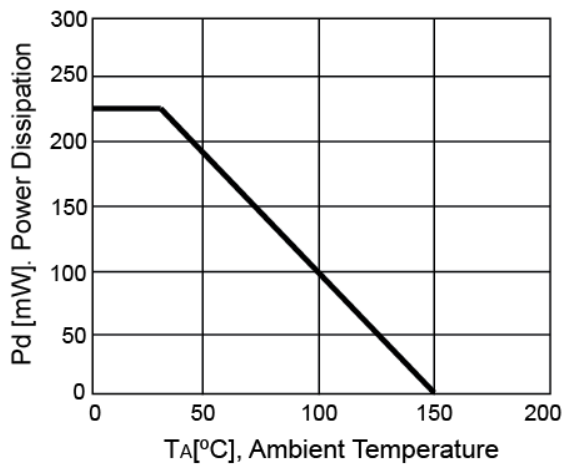
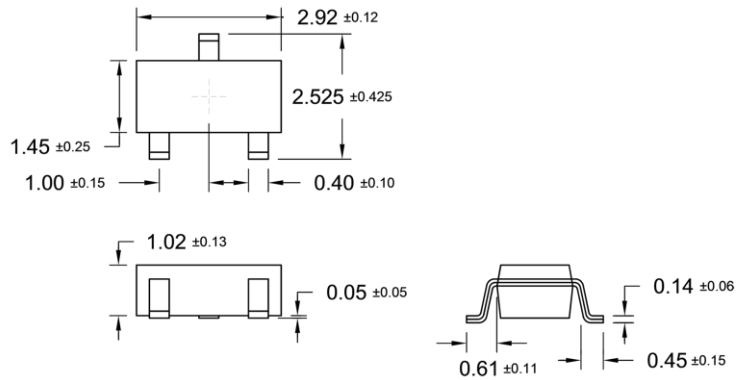


Figure 5. Power Derating Curve

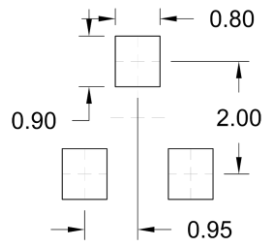


PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

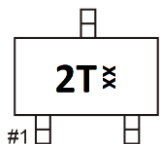
SOT-23



SUGGESTED PAD LAYOUT (Unit: Millimeters)



MARKING DIAGRAM



2T = Device Code

xx = Year Code + Month Code

Year Code: 7=2017, 8=2018

Month Code:

1 =Jan **2** =Feb **3** =Mar **4** =Apr

5 =May **6** =Jun **7** =Jul **8** =Aug

9 =Sep **A** =Oct **B** =Nov **C** =Dec

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