

# N0501S

R07DS0725EJ0100

Rev.1.00

NPN SILICON EPITAXIAL TRANSISTOR

Mar 30, 2012

## FEATURES

- Complements to N0501R.
- $V_{CE0} = 50\text{ V}$
- $I_{C(DC)} = 1.0\text{ A}$
- Miniature package SOT-23F (2SD1615: Package variation of 3pPoMM)

## PRODUCT LINEUP

Part Number	Packing	Package Name	Package Code	Mass [TYP.]
N0501S-T1-AT	Tape 3000p/reel	SOT-23F	PVSF0003ZA-A	0.0126g

## ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	$V_{CBO}$	60	V
Collector to Emitter Voltage	$V_{CEO}$	50	V
Emitter to Base Voltage	$V_{EBO}$	6.0	V
Collector Current (DC)	$I_{C(DC)}$	1.0	A
Collector Current (pulse) *1	$I_{C(pulse)}$	2.0	A
Total Power Dissipation	$P_{T1}$	0.2	W
Total Power Dissipation *2	$P_{T2}$	1.0	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

 Note \*1.  $PW \leq 10\text{ ms}$ , Duty Cycle  $\leq 50\%$ 

 \*2. FR-4 board size  $2500\text{ mm}^2 \times 1.6\text{ mm}$ ,  $t \leq 5\text{ sec}$ 

## ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

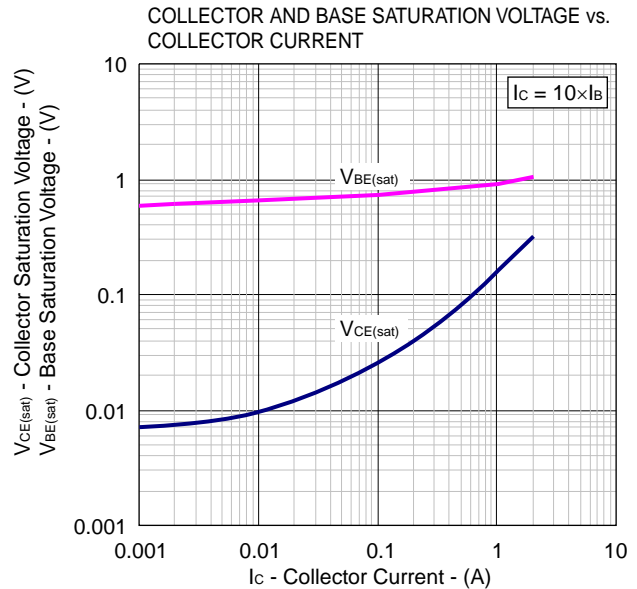
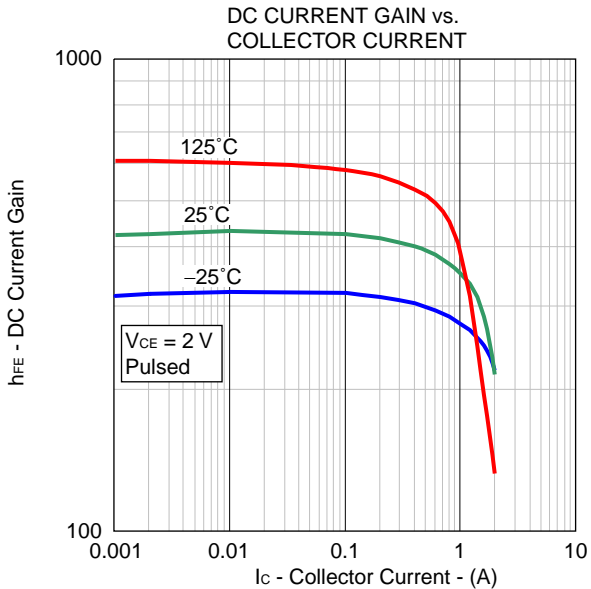
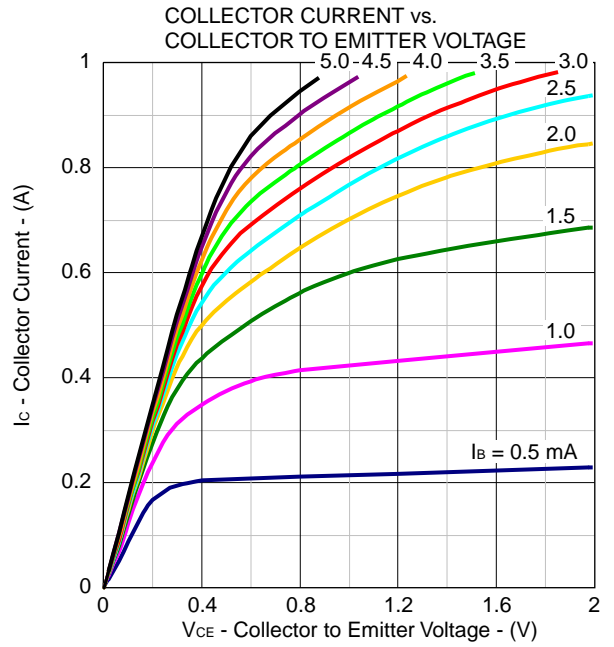
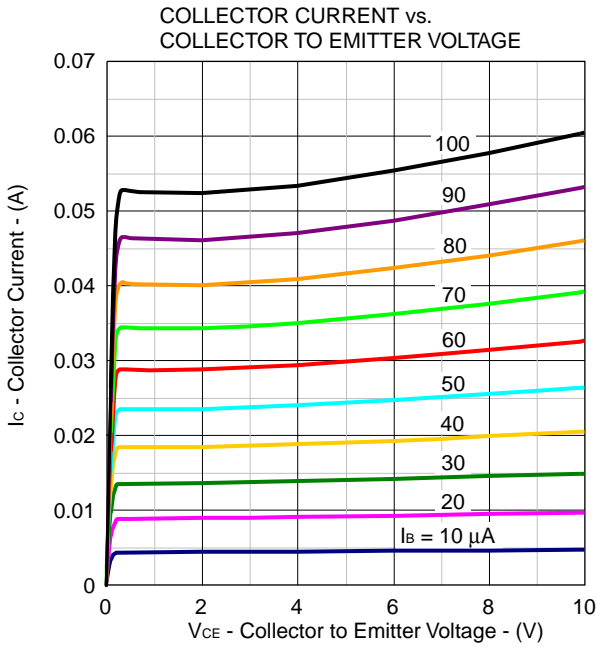
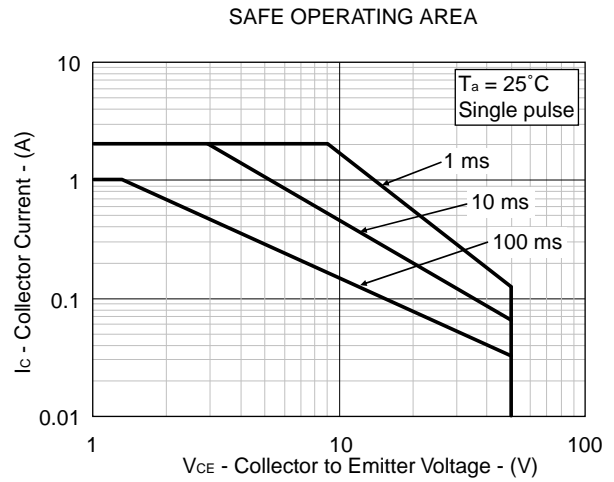
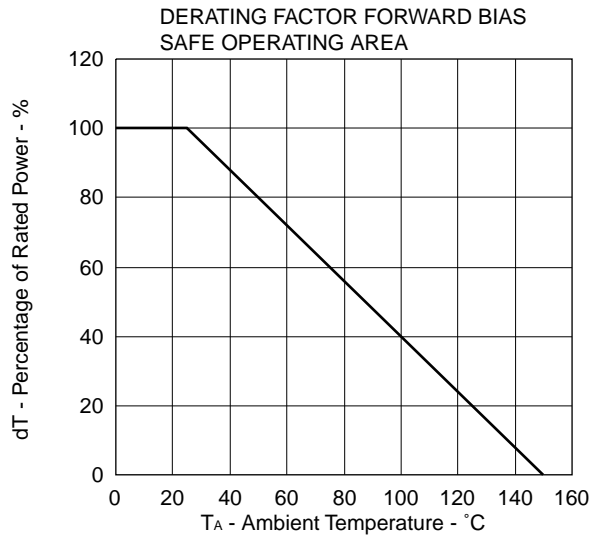
Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 60\text{ V}$ , $I_E = 0$			100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 6.0\text{ V}$ , $I_C = 0$			100	nA
DC Current Gain	$h_{FE1}^{*1}$	$V_{CE} = 2.0\text{ V}$ , $I_C = 100\text{ mA}$	135	290	600	
DC Current Gain	$h_{FE2}^{*1}$	$V_{CE} = 2.0\text{ V}$ , $I_C = 1.0\text{ A}$	81	270		
Collector Saturation Voltage	$V_{CE(sat)}^{*1}$	$I_C = 1.0\text{ A}$ , $I_B = 50\text{ mA}$		0.15	0.3	V
Base Saturation Voltage	$V_{BE(sat)}^{*1}$	$I_C = 1.0\text{ A}$ , $I_B = 50\text{ mA}$		0.9	1.2	V
Base to Emitter Voltage	$V_{BE}^{*1}$	$V_{CE} = 2.0\text{ V}$ , $I_C = 50\text{ mA}$	600		700	mV
Gain Bandwidth Product	$f_T$	$V_{CE} = 2.0\text{ V}$ , $I_E = -100\text{ mA}$		150		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$		20		pF

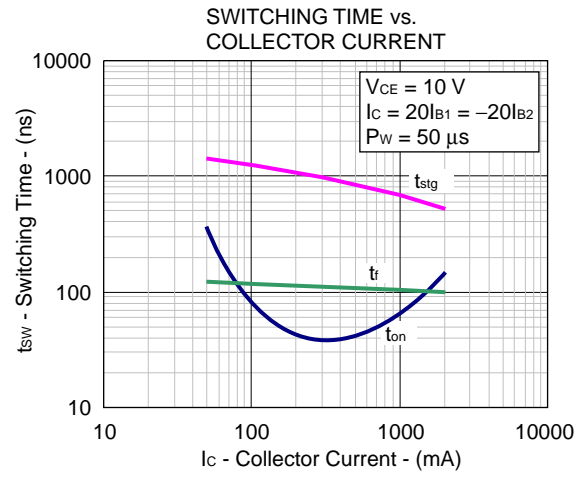
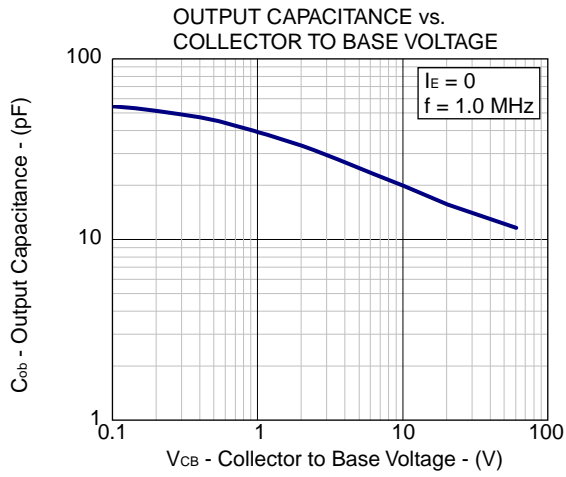
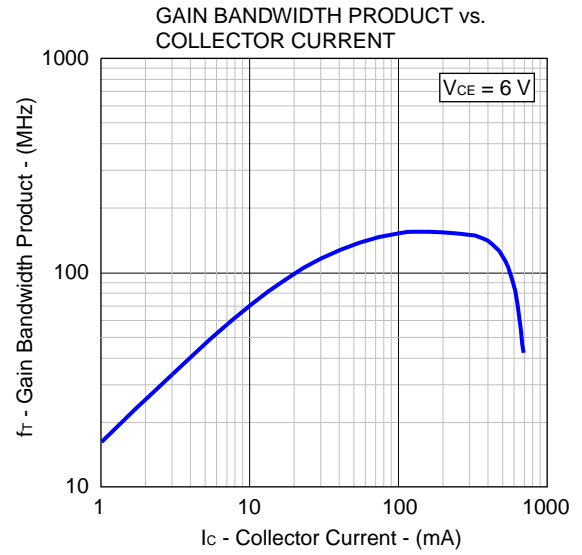
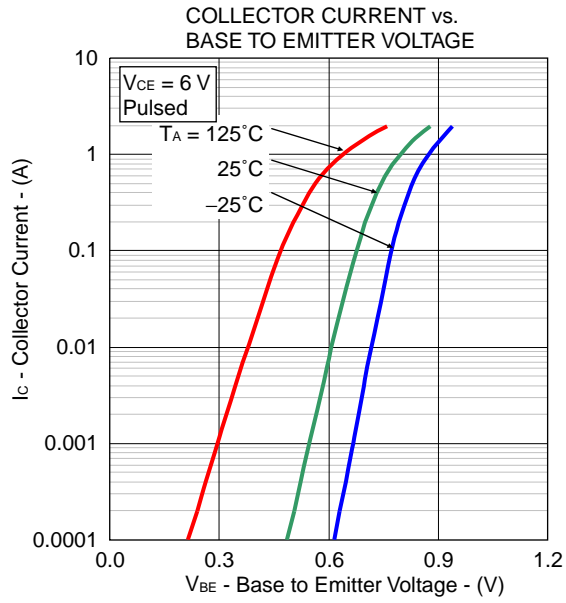
Note \*1. Pulsed

## $h_{FE}$ Classification

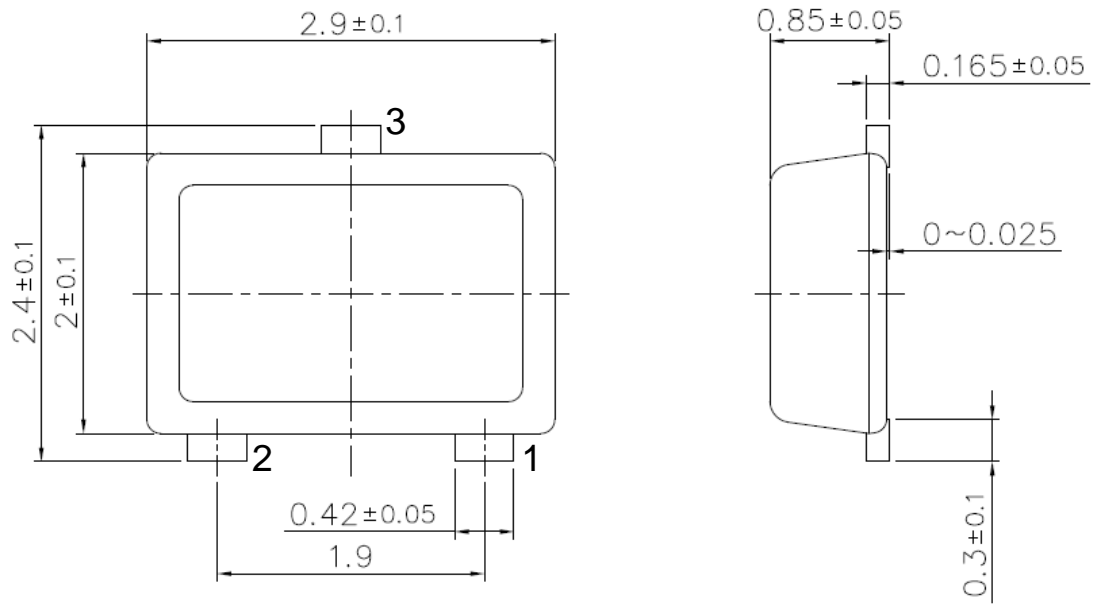
Marking	GM	GL	GK
$h_{FE1}$	135 to 270	200 to 400	300 to 600

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )





PACKAGE DRAWING (Unit: mm)



- 1: Emitter
- 2: Base
- 3: Collector

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