Epitaxial planar type NPN silicon transistor

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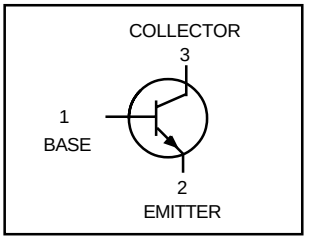
●Features

1) High DC current gain.
   h_{FE} = 1200 (Typ.)
2) High emitter-base voltage.
   V_{EBO} =12V (Min.)
3) Low $V_{CE\ (sat)}$.
   $V_{CE\ (sat)}$ = 0.18V (Typ.)
   (I_C / I_B = 500mA / 20mA)
4) We declare that the material of product compliance with RoHS requirements.



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	25	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	12	V
Collector current	I_C	0.5	A(DC)
		1	A(Pulse) □
Collector power dissipation	P_C	0.2	W
Junction temperature	Tj	150	C
Storage temperature	Tstg	−55～+150	C

□ Single pulse Pw=100ms

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	25	–	–	V	I_C=10μA
Collector-emitter breakdown voltage	BV_{CEO}	20	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	12	–	–	V	I_E=10μA
Collector cutoff current	I_{CBO}	–	–	0.5	μA	V_{CB}=20V
Emitter cutoff current	I_{EBO}	–	–	0.5	μA	V_{EB}=10V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	0.18	0.4	V	I_C/I_B=500mA/20mA
DC current transfer ratio	h_{FE}	820	–	2700	–	V_{CE}=3V, I_C=10mA
Transition frequency	f_T □	–	350	–	MHz	V_{CE}=10V, I_E=−50mA, f=100MHz
Output capacitance	Cob	–	8.0	–	pF	V_{CB}=10V, I_E=0A, f=1MHz
Output On-resistance	Ron	–	0.8	–	pF	I_B=1mA, Vi=100mV(rms), f=1kHz

□ Measured using pulse current

● h_{FE} Values Classification, Device Marking and Ordering Information

Device	h_{FE}	Marking	Shipping
FTD2114KVLT1G	820~1800	BV	3000/Tape&Reel
FTD2114KVLT3G	820~1800	BV	10000/Tape&Reel
FTD2114KWLT1G	1200~2700	BW	3000/Tape&Reel
FTD2114KWLT3G	1200~2700	BW	10000/Tape&Reel

●Electrical characteristic curves

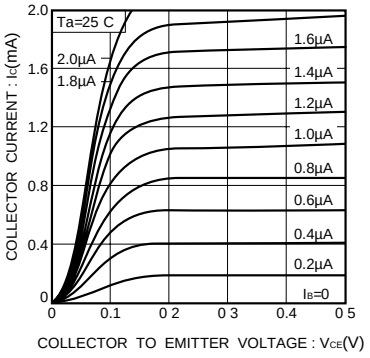


Fig.1 Grounded emitter output characteristics(Ⅰ)

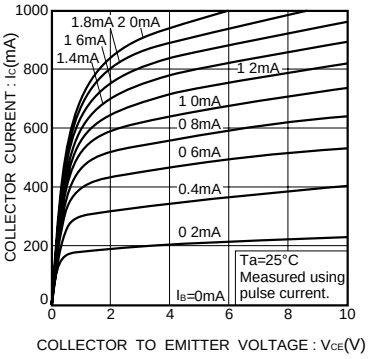


Fig.2 Grounded emitter output characteristics(Ⅱ)

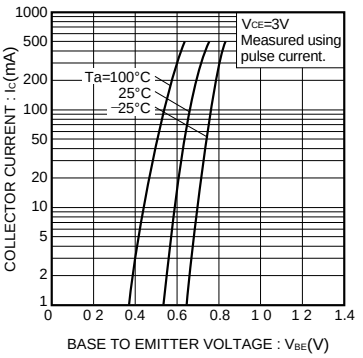


Fig.3 Grounded emitter propagation characteristics

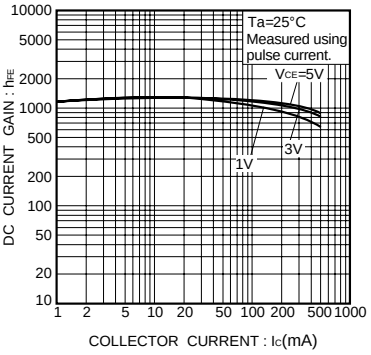


Fig.4 DC current gain vs. collector current(Ⅰ)

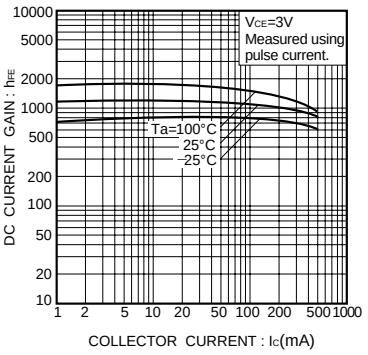


Fig.5 DC current gain vs. collector current(Ⅱ)

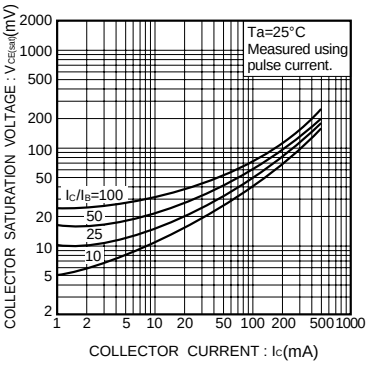


Fig.6 Collector-emitter saturation voltage vs. collector current(Ⅰ)

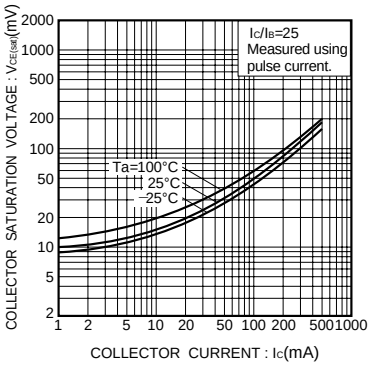


Fig.7 Collector-emitter saturation voltage vs. collector current(Ⅱ)

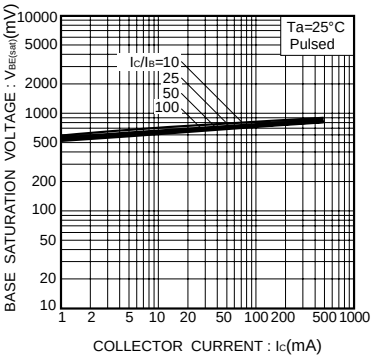


Fig.8 Base-emitter saturation voltage vs. collector current(Ⅰ)

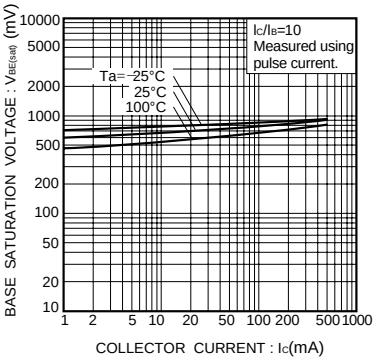


Fig.9 Base-emitter saturation voltage vs. collector current(Ⅱ)

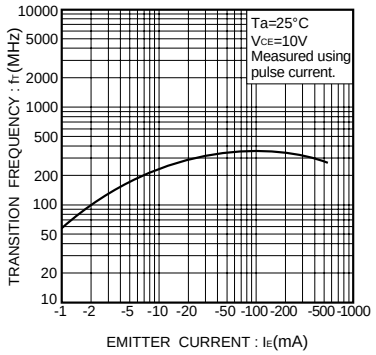


Fig.10 Gain bandwidth product vs. emitter current

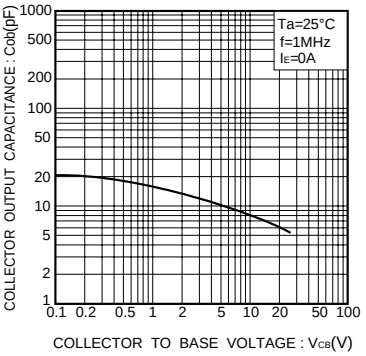


Fig.11 Collector output capacitance vs. collector-base voltage

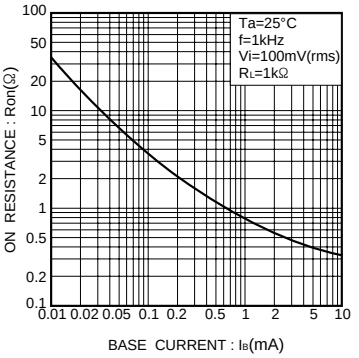
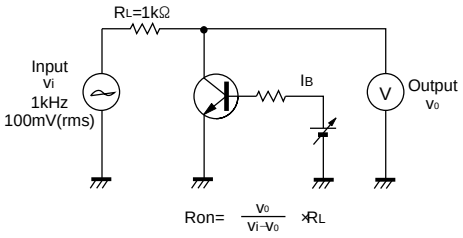


Fig.12 Output-on resistance vs. base current

●Ron measurement circuit



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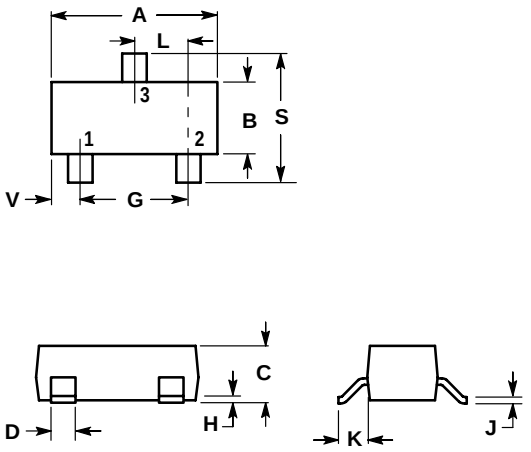

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

P N 1. ANODE
2. NO CONNECTION
3. CATHODE