NPN Medium Power Transistor (Switching)

SST4401 / MMST4401

●Features

1) BV_{CEO}>40V (I_C=1mA)
2) Complements the SST4403 / MMST4403.

●Package, marking, and packaging specifications

Part No.	SST4401	MMST4401
Packaging type	SST3	SMT3
Marking	R2X	R2X
Code	T116	T146
Basic ordering unit (pieces)	3000	3000

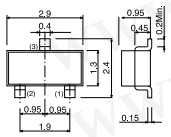
●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	0.6	A
Collector power dissipation	P_C	0.2	W
		0.35	W
Junction temperature	Tj	150	˚C
Storage temperature	Tstg	−55 to +150	˚C

∗ Mounted on a 7×5×0.6mm CERAMIC SUBSTRATE

●Dimensions (Unit : mm)

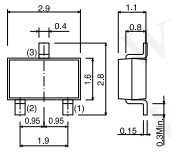
SST4401



(1) Emitter
(2) Base
(3) Collector

ROHM : SST3

MMST4401



(1) Emitter
(2) Base
(3) Collector

ROHM : SMT3
EIAJ : SC-59

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	60	–	–	V	I_C=100μA
Collector-emitter breakdown voltage	BV_{CEO}	40	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	6	–	–	V	I_E=100μA
Collector cutoff current	I_{CBO}	–	–	0.1	μA	V_{CB}=35V
Emitter cutoff current	I_{EBO}	–	–	0.1	μA	V_{EB}=5V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.4	V	I_C/I_B=150mA/15mA
		–	–	0.75		I_C/I_B=500mA/50mA
Base-emitter saturation voltage	$V_{BE(sat)}$	–	–	0.95	V	I_C/I_B=150mA/15mA
		–	–	1.2		I_C/I_B=500mA/50mA
DC current transfer ratio	h_{FE}	20	–	–	–	V_{CE}=1V, I_C=0.1mA
		40	–	–		V_{CE}=1V, I_C=1mA
		80	–	–		V_{CE}=1V, I_C=10mA
		100	–	300		V_{CE}=1V, I_C=150mA
		40	–	–		V_{CE}=2V, I_C=500mA
Transition frequency	f_T	250	–	–	MHz	V_{CE}=10V, I_E=−20mA, f=100MHz
Collector output capacitance	Cob	–	–	6.5	pF	V_{CB}=10V, f=100kHz
Emitter input capacitance	Cib	–	–	30	pF	V_{EB}=0.5V, f=100kHz
Delay time	td	–	–	15	ns	V_{CC}=30V, $V_{EB(OFF)}$=2V, I_C=150mA, I_{B1}=15mA
Rise time	tr	–	–	20	ns	V_{CC}=30V, $V_{EB(OFF)}$=2V, I_C=150mA, I_{B1}=15mA
Storage time	tstg	–	–	225	ns	V_{CC}=30V, I_C=150mA, I_{B1}=-I_{B2}=15mA
Fall time	tf	–	–	30	ns	V_{CC}=30V, I_C=150mA, I_{B1}=-I_{B2}=15mA

●Electrical characteristic curves

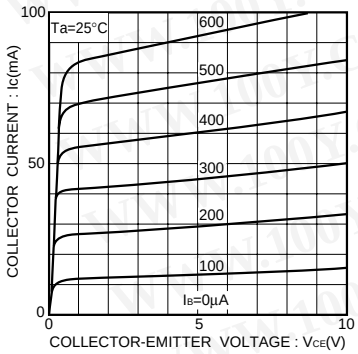


Fig.1 Grounded emitter output characteristics

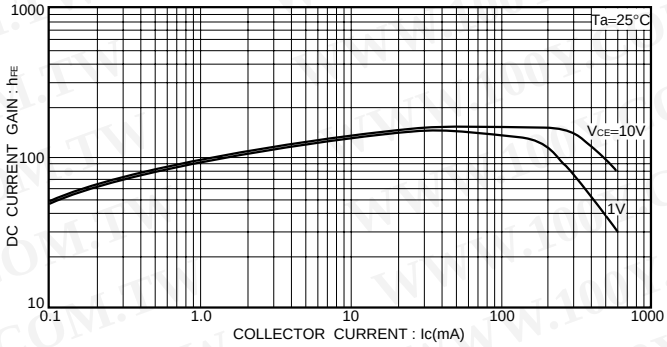


Fig.3 DC current gain vs. collector current(I)

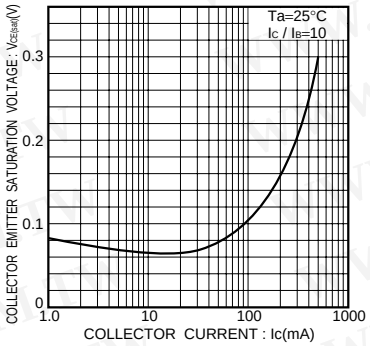


Fig.2 Collector-emitter saturation voltage vs. collector current

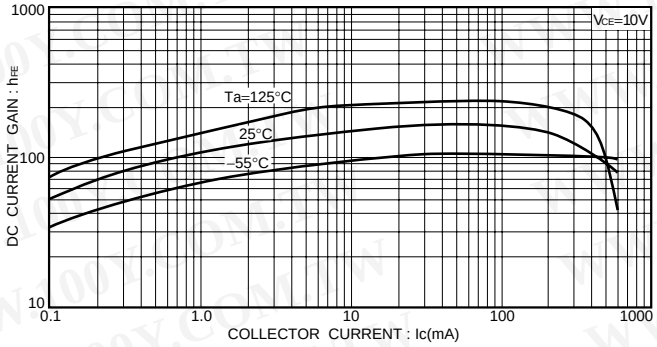


Fig.4 DC current gain vs. collector current(II)

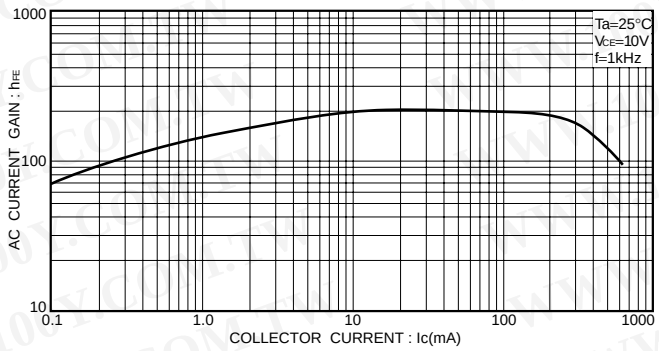


Fig.5 AC current gain vs. collector current

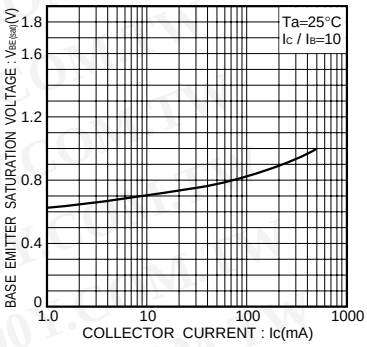


Fig.6 Base-emitter saturation voltage vs. collector current

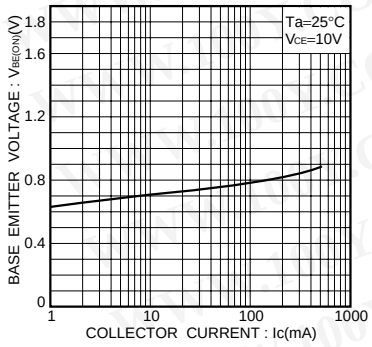


Fig.7 Grounded emitter propagation characteristics

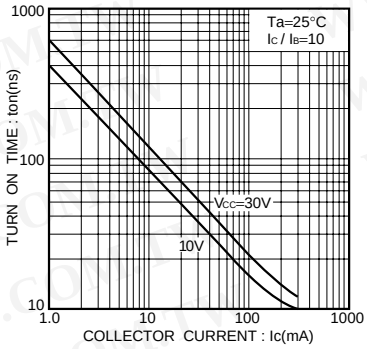


Fig.8 Turn-on time vs. collector current

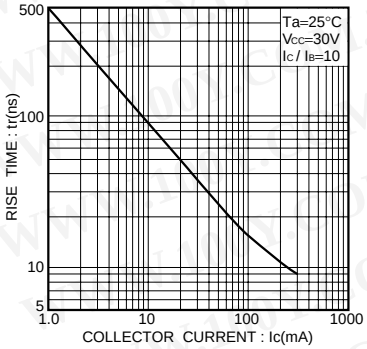


Fig.9 Rise time vs. collector current

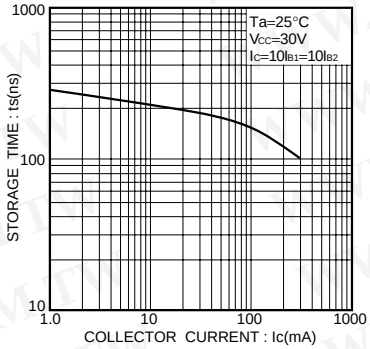


Fig.10 Storage time vs. collector current

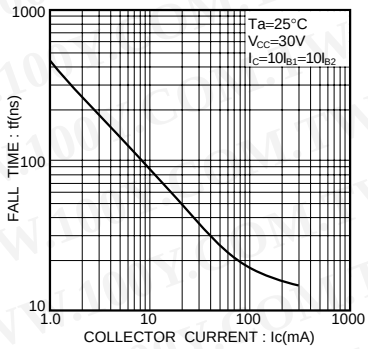


Fig.11 Fall time vs. collector current

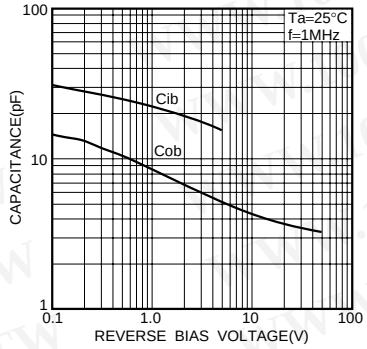


Fig.12 Input / output capacitance vs. voltage

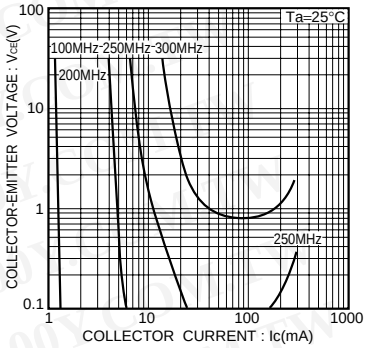


Fig.13 Gain bandwidth product

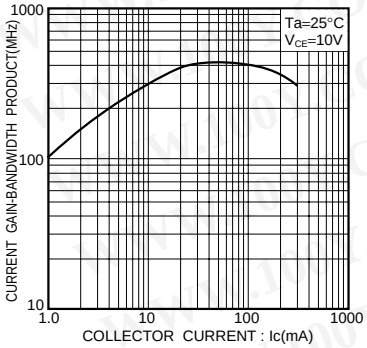


Fig.14 Gain bandwidth product vs. collector current

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