

# PNP Medium Power Transistor (Switching)

UMT2907A / SST2907A/MMST2907A / RXT2907A / PN2907A

●Features

- 1)  $BV_{CE0} < -40V$  ( $I_c = -10mA$ )
- 2) Complements the UMT2222A/SST2222A/MMST2222A/RXT2222A/PN2222A.

●Package, marking and packaging specifications

Type	UMT2907A	SST2907A	MMST2907A	RXT2907A	PN2907A
Package	UMT3	SST3	SMT3	MPT3	TO-92
Marking	R2F	R2F	R2F	AC*	---
Code	T108	T116	T146	T100	T83
Basic ordering unit (pieces)	3000	3000	3000	1000	3000

\* Indicates lot number.

●Absolute maximum ratings ( $T_a = 25^\circ C$ )

Parameter	Symbol	Limite	Unit
Collector-base voltage	$V_{CB0}$	-60	V
Collector-emitter voltage	$V_{CE0}$	-60	V
Emitter-base voltage	$V_{EB0}$	-5	V
Collector current	$I_c$	-0.6	A
Collector power dissipation	UMT2907A, SST2907A, MMST2907A	0.2	W
	RXT2907A	0.5	
	PN2907A	0.625	
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55~150	$^\circ C$

●External dimensions (Units : mm)

**UMT2907A**

ROHM : UMT3  
EIAJ : SC-70

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

**SST2907A**

ROHM : SST3

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

**MMST2907A**

ROHM : SMT3  
EIAJ : SC-59

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

**RXT2907A**

ROHM : MPT3  
EIAJ : SC-62

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

**PN2907A**

ROHM : TO-92  
EIAJ : SC-43

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

USA & European specification models

(SPEC-A31)

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CEO</sub>	-60	—	—	V	I <sub>c</sub> =10 μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	-60	—	—	V	I <sub>c</sub> =10mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	-5	—	—	V	I <sub>e</sub> =10 μA
Collector cutoff current	I <sub>CEO</sub>	—	—	-100	nA	V <sub>CE</sub> =-50V
	I <sub>CEB</sub>	—	—	-100	nA	V <sub>CE</sub> =-30V
Emitter cutoff current	I <sub>EB0</sub>	—	—	-100	nA	V <sub>EB</sub> =-3V
		—	—	-0.4	V	I <sub>c</sub> /I <sub>B</sub> =-150mA/-15mA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	-1.6	V	I <sub>c</sub> /I <sub>B</sub> =-500mA/-50mA
		—	—	-1.3	V	I <sub>c</sub> /I <sub>B</sub> =-150mA/-15mA
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	—	—	-2.6	V	I <sub>c</sub> /I <sub>B</sub> =-500mA/-50mA
		—	—	-2.6	V	I <sub>c</sub> /I <sub>B</sub> =-500mA/-50mA
DC current transfer ratio	h <sub>FE</sub>	75	—	—	—	V <sub>CE</sub> =-10V, I <sub>c</sub> =-0.1mA
		100	—	—	—	V <sub>CE</sub> =-10V, I <sub>c</sub> =-1mA
		100	—	—	—	V <sub>CE</sub> =-10V, I <sub>c</sub> =-10mA
		100	—	300	—	V <sub>CE</sub> =-10V, I <sub>c</sub> =-150mA
		50	—	—	—	V <sub>CE</sub> =-10V, I <sub>c</sub> =-500mA
Transition frequency	f <sub>T</sub>	200	—	—	MHz	V <sub>CE</sub> =-20V, I <sub>c</sub> =-50mA, f=100MHz
Output capacitance	C <sub>ob</sub>	—	—	8	pF	V <sub>CE</sub> =-10V, f=100kHz
Emitter input capacitance	C <sub>ib</sub>	—	—	30	pF	V <sub>EB</sub> =-2V, f=100kHz
Turn-on time	t <sub>on</sub>	—	—	50	ns	V <sub>CC</sub> =-30V, V <sub>BE(OFF)</sub> =-1.5V, I <sub>c</sub> =-150mA, I <sub>B1</sub> =-15mA
Delay time	t <sub>d</sub>	—	—	10	ns	V <sub>CC</sub> =-30V, V <sub>BE(OFF)</sub> =-1.5V, I <sub>c</sub> =-150mA, I <sub>B1</sub> =-15mA
Rise time	t <sub>r</sub>	—	—	40	ns	V <sub>CC</sub> =-30V, V <sub>BE(OFF)</sub> =-1.5V, I <sub>c</sub> =-150mA, I <sub>B1</sub> =-15mA
Turn-off time	t <sub>off</sub>	—	—	100	ns	V <sub>CC</sub> =-30V, I <sub>c</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA
Storage time	t <sub>stg</sub>	—	—	80	ns	V <sub>CC</sub> =-30V, I <sub>c</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA
Fall time	t <sub>f</sub>	—	—	30	ns	V <sub>CC</sub> =-30V, I <sub>c</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA

●Electrical characteristic curves

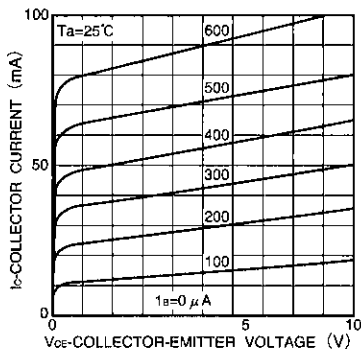


Fig.1 Grounded emitter output characteristics

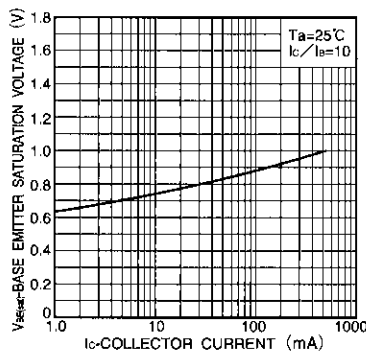


Fig.2 Base-emitter saturation voltage vs. collector current

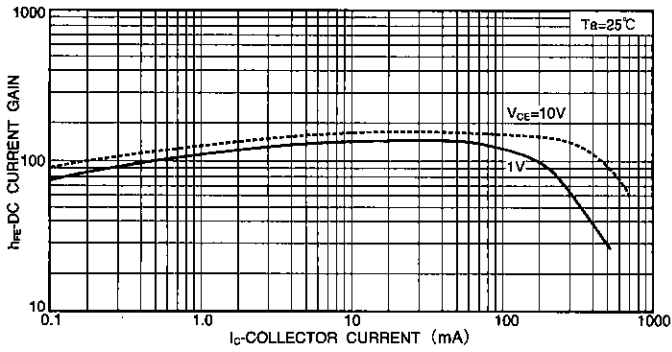


Fig.3 DC current gain vs. collector current ( I )

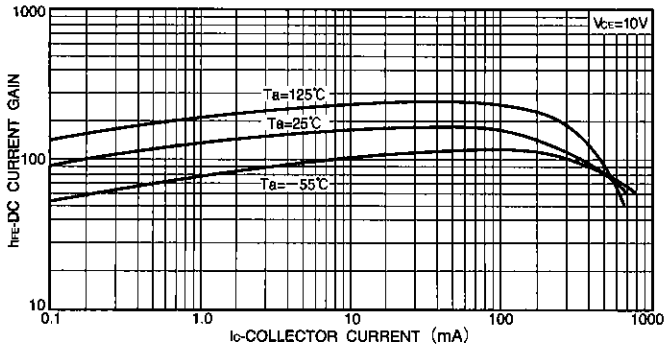


Fig.4 DC current gain vs. collector current ( II )

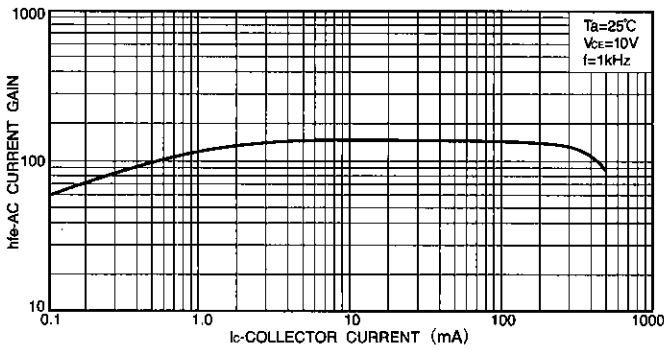


Fig.5 AC current gain vs. collector current

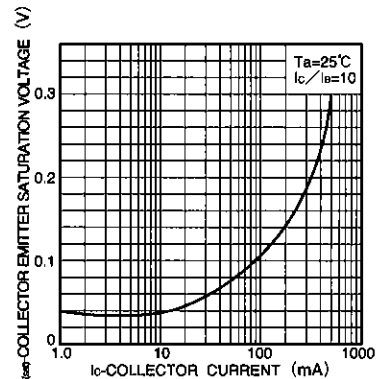


Fig.6 Collector-emitter saturation voltage vs. collector current



USA & European specification models

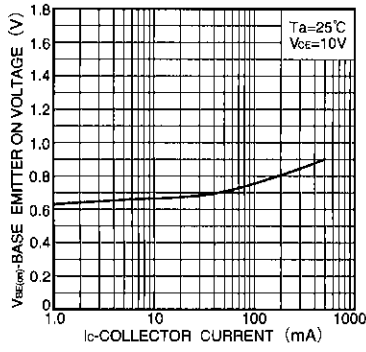


Fig.7 Grounded emitter propagation characteristics

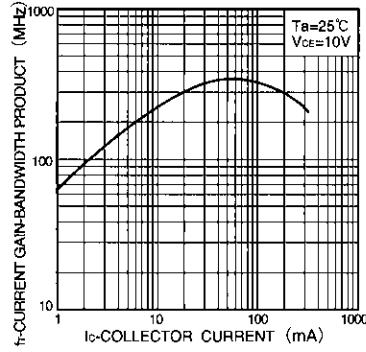


Fig.8 Gain bandwidth product vs. collector current

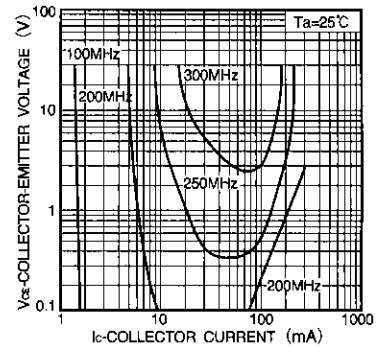


Fig.9 Gain bandwidth product

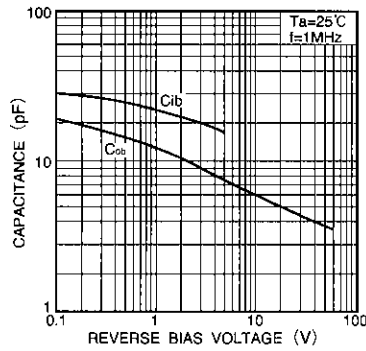


Fig.10 Input/output capacitance vs. voltage

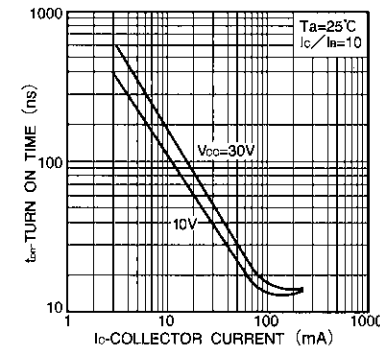


Fig.11 Turn-on time vs. collector current

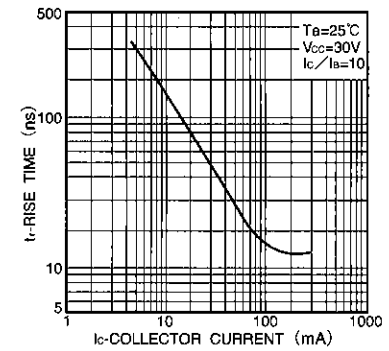


Fig.12 Rise time vs. collector current

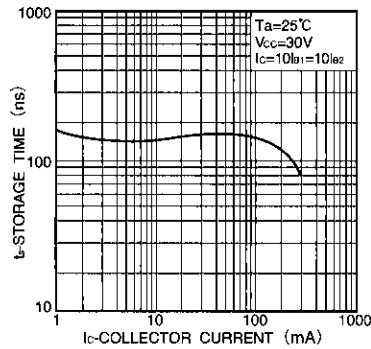


Fig.13 Storage time vs. collector current

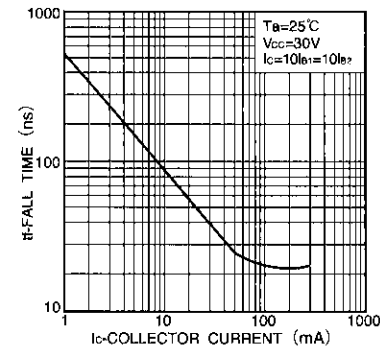


Fig.14 Fall time vs. collector current

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