PNP Medium Power Transistor (Switching)

UMT2907A / SST2907A / MMST2907A / PN2907A

●Features

1) BV_{CEO}< -60V (I_C=-10mA)
2) Complements the UMT2222A / SST2222A / MMST2222A / PN2222A.

●Package, marking and packaging specifications

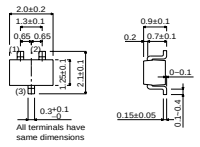
Part No.	UMT2907A	SST2907A	MMST2907A	PN2907A
Packaging type	UMT3	SST3	SMT3	TO-92
Marking	R2F	R2F	R2F	-
Code	T106	T116	T146	T93
Basic ordering unit (pieces)	3000	3000	3000	3000

●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	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	UMT2907A, SST2907A, MMST2907A	P_C	0.2	W
	PN2907A		0.625	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	-55~+150	°C

●External dimensions (Units : mm)

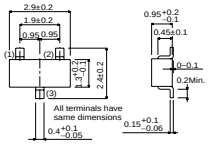
UMT2907A



ROHM : UMT3
EIAJ : SC-70

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

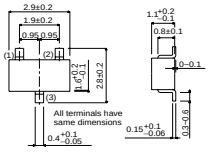
SST2907A



ROHM : SST3

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

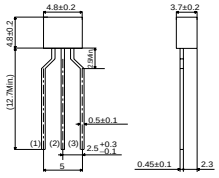
MMST2907A



ROHM : SMT3
EIAJ : SC-59

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

PN2907A



ROHM : TO-92
EIAJ : SC-43

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

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–60	–	–	V	I_C=10μA
Collector-emitter breakdown voltage	BV_{CEO}	–60	–	–	V	I_C=10mA
Emitter-base breakdown voltage	BV_{EBO}	–5	–	–	V	I_E=10μA
Collector cutoff current	I_{CBO}	–	–	–100	nA	V_{CB}=–50V
	I_{CES}	–	–	–100		V_{CB}=–30V
Emitter cutoff current	I_{EBO}	–	–	–100	nA	V_{EB}=–3V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	–0.4	V	I_C/I_B=–150mA/–15mA
		–	–	–1.6		I_C/I_B=–500mA/–50mA
Base-emitter saturation voltage	$V_{BE(sat)}$	0.6	–	–1.3	V	I_C/I_B=–150mA/–15mA
		–	–	–2.6		I_C/I_B=–500mA/–50mA
DC current transfer ratio	h_{FE}	75	–	–	–	V_{CE}=–10V, I_C=–0.1mA
		100	–	–		V_{CE}=–10V, I_C=–1mA
		100	–	–		V_{CE}=–10V, I_C=–10mA
		100	–	300		V_{CE}=–10V, I_C=–150mA
		50	–	–		V_{CE}=–10V, I_C=–500mA
Transition frequency	f_T	200	–	–	MHz	V_{CE}=–20V, I_C=–50mA, f=100MHz
Collector output capacitance	Cob	–	–	8	pF	V_{CB}=–10V, f=100kHz
Emitter input capacitance	Cib	–	–	30	pF	V_{EB}=–2V, f=100kHz
Turn-on time	ton	–	–	50	ns	V_{CC}=–30V, $V_{BE(OFF)}$=–1.5V, I_C=–150mA, I_{B1}=–15mA
Delay time	td	–	–	10	ns	V_{CC}=–30V, $V_{BE(OFF)}$=–1.5V, I_C=–150mA, I_{B1}=–15mA
Rise time	tr	–	–	40	ns	V_{CC}=–30V, $V_{BE(OFF)}$=–1.5V, I_C=–150mA, I_{B1}=–15mA
Turn-off time	toff	–	–	100	ns	V_{CC}=–30V, I_C=–150mA, I_{B1}=I_{B2}=–15mA
Storage time	tstg	–	–	80	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

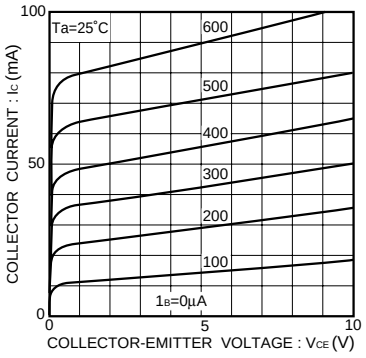


Fig.1 Grounded emitter output characteristics

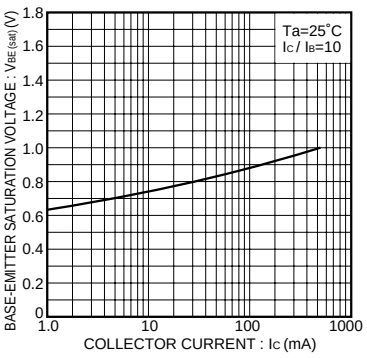


Fig.2 Base-emitter saturation voltage vs. collector current

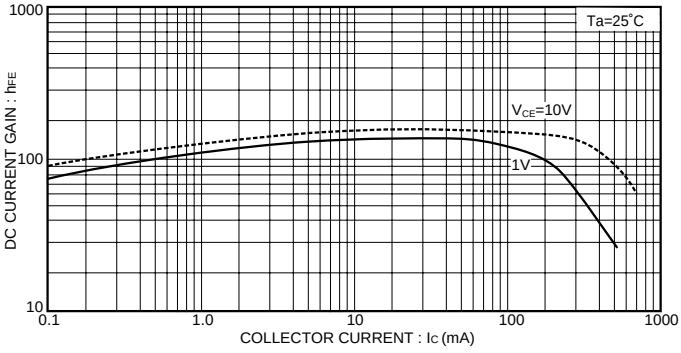


Fig.3 DC current gain vs. collector current (I)

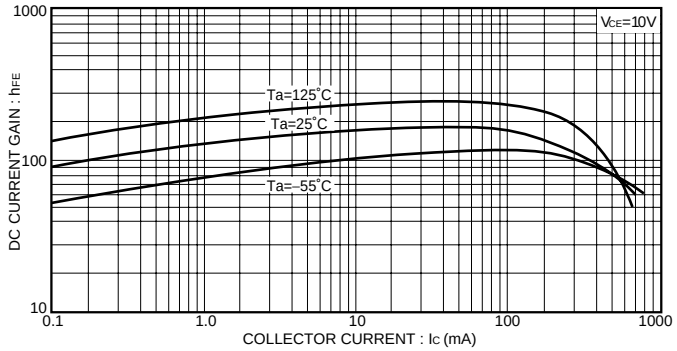


Fig.4 DC current gain vs. collector current (Ⅱ)

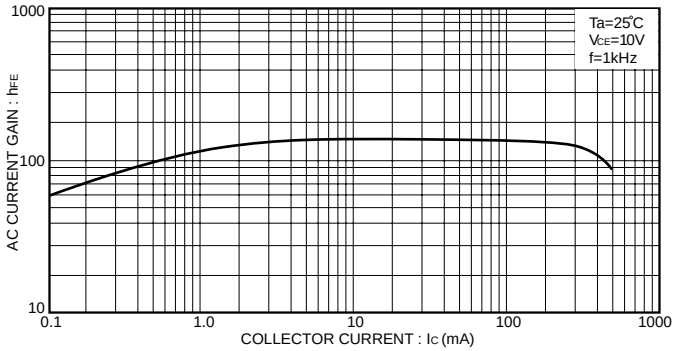


Fig.5 AC current gain vs. collector current

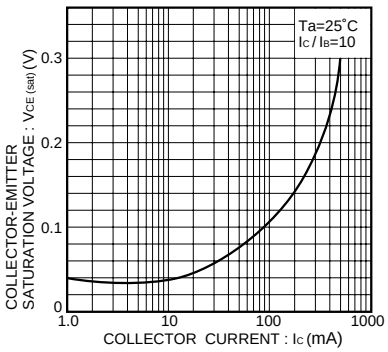


Fig.6 Collector-emitter saturation voltage vs. collector current

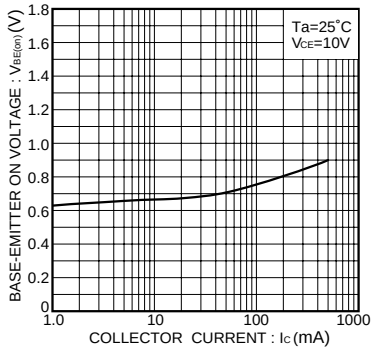


Fig.7 Grounded emitter propagation characteristics

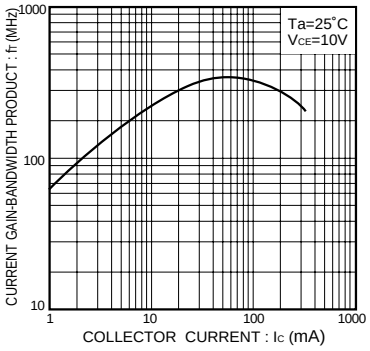


Fig.8 Gain bandwidth product vs. collector current

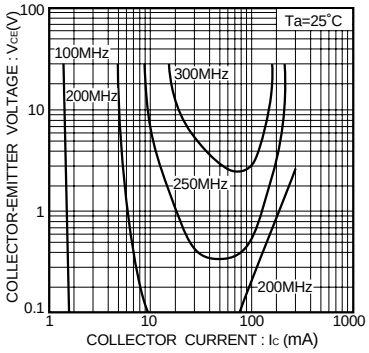


Fig.9 Gain bandwidth product

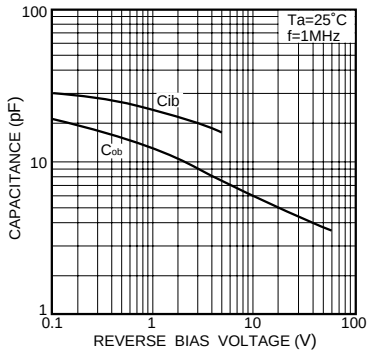


Fig.10 Input/output capacitance vs. voltage

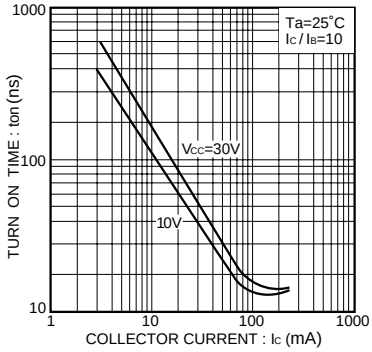


Fig.11 Turn-on time vs.collector current

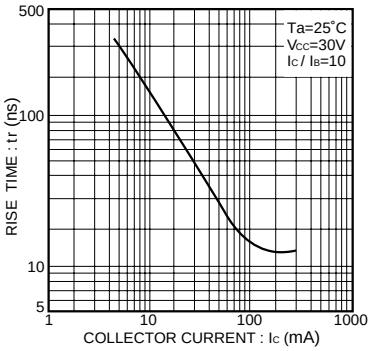


Fig.12 Rise time vs. collector current

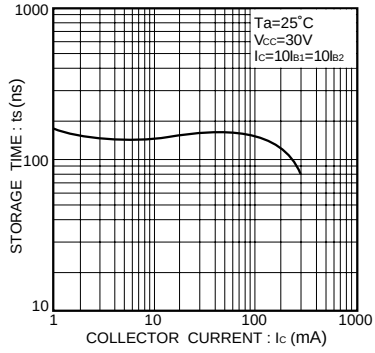


Fig.13 Storage time vs. collector current

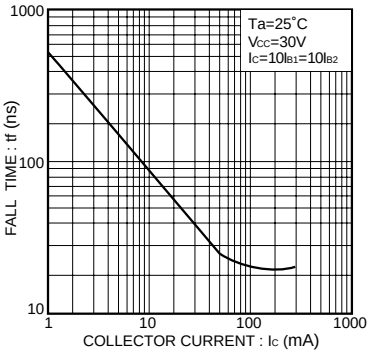


Fig.14 Fall time vs. collector current