

PNP Medium Power Transistor (Switching)

UMT2907A / SST2907A / MMST2907A / PN2907A

●Features

- 1) $V_{CE0} < -60V$ ($I_C = -10mA$)
- 2) Complements the UMT2222A / SST2222A / MMST2222A / PN2222A.

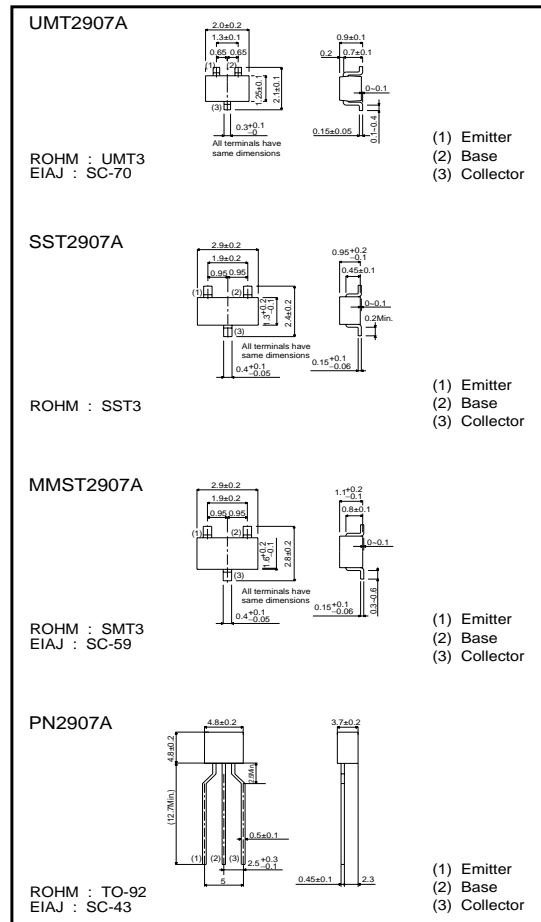
●Package, marking and packaging specifications

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 ($T_a = 25^\circ C$)

Parameter	Symbol	Limits	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	P_c	0.2	W
	PN2907A		0.625	
Junction temperature	T_j	150	$^\circ C$	
Storage temperature	T_{stg}	-55~+150	$^\circ C$	

●External dimensions (Units : mm)



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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-60	-	-	V	$I_C=10\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-60	-	-	V	$I_C=10mA$
Emitter-base breakdown voltage	BV_{EBO}	-5	-	-	V	$I_E=10\mu A$
Collector cutoff current	I_{CBO}	-	-	-100	nA	$V_{CB}=-50V$
	I_{CES}	-	-	-100	nA	$V_{CB}=-30V$
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	V	$I_C/I_B=-500mA/-50mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	0.6	-	-1.3	V	$I_C/I_B=-150mA/-15mA$
		-	-	-2.6	V	$I_C/I_B=-500mA/-50mA$
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	C_{ob}	-	-	8	pF	$V_{CB}=-10V, f=100kHz$
Emitter input capacitance	C_{ib}	-	-	30	pF	$V_{EB}=-2V, f=100kHz$
Turn-on time	t_{on}	-	-	50	ns	$V_{CC}=-30V, V_{BE(OFF)}=-1.5V, I_C=-150mA, I_{B1}=-15mA$
Delay time	t_d	-	-	10	ns	$V_{CC}=-30V, V_{BE(OFF)}=-1.5V, I_C=-150mA, I_{B1}=-15mA$
Rise time	t_r	-	-	40	ns	$V_{CC}=-30V, V_{BE(OFF)}=-1.5V, I_C=-150mA, I_{B1}=-15mA$
Turn-off time	t_{off}	-	-	100	ns	$V_{CC}=-30V, I_C=-150mA, I_{B1}=I_{B2}=-15mA$
Storage time	t_{stg}	-	-	80	ns	$V_{CC}=-30V, I_C=-150mA, I_{B1}=I_{B2}=-15mA$
Fall time	t_f	-	-	30	ns	$V_{CC}=-30V, I_C=-150mA, I_{B1}=I_{B2}=-15mA$

●Electrical characteristic curves

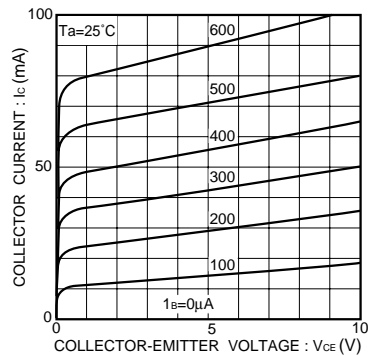


Fig.1 Grounded emitter output characteristics

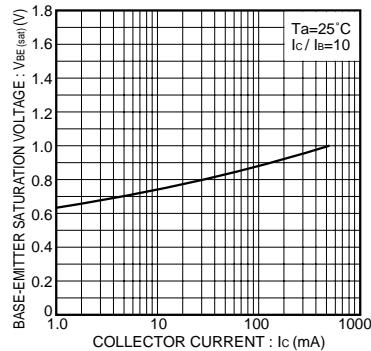


Fig.2 Base-emitter saturation voltage vs. collector current

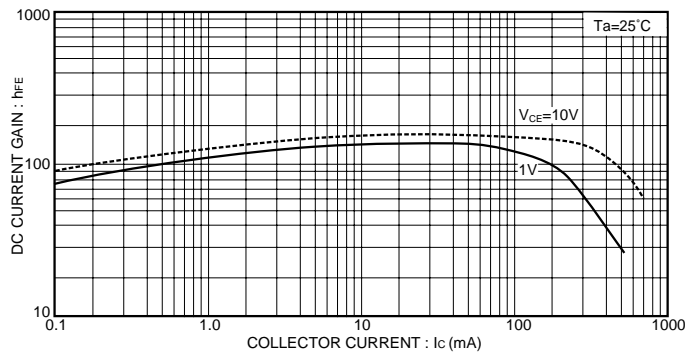


Fig.3 DC current gain vs. collector current (I)

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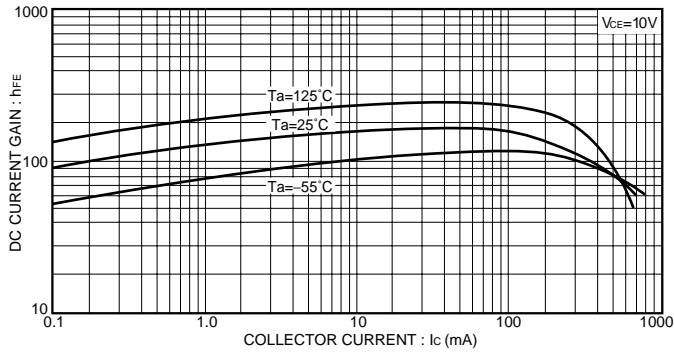


Fig.4 DC current gain vs. collector current (II)

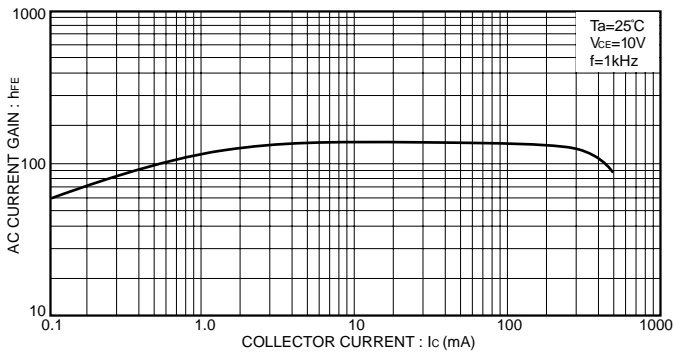


Fig.5 AC current gain vs. collector current

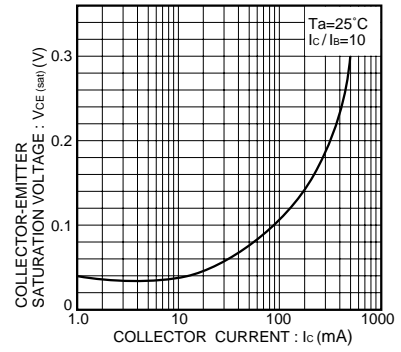


Fig.6 Collector-emitter saturation voltage vs. collector current

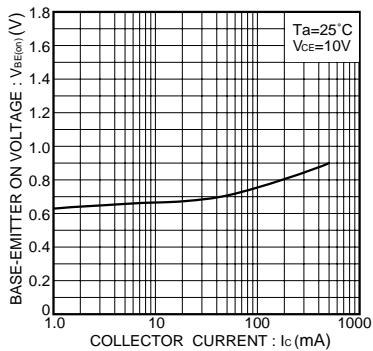


Fig.7 Grounded emitter propagation characteristics

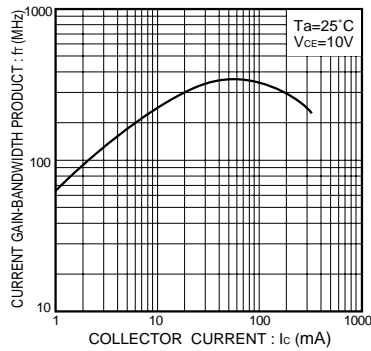


Fig.8 Gain bandwidth product vs. collector current

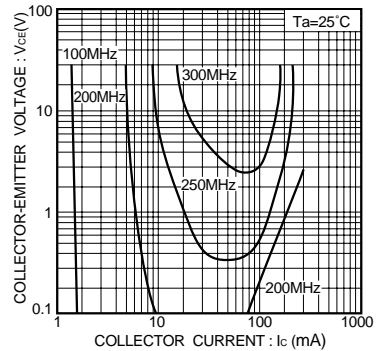


Fig.9 Gain bandwidth product

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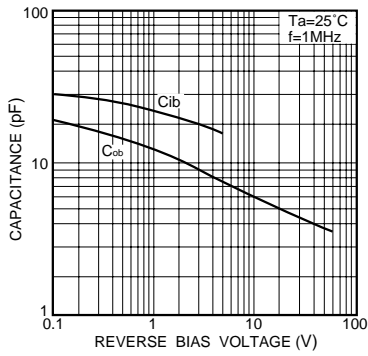


Fig.10 Input/output capacitance vs. voltage

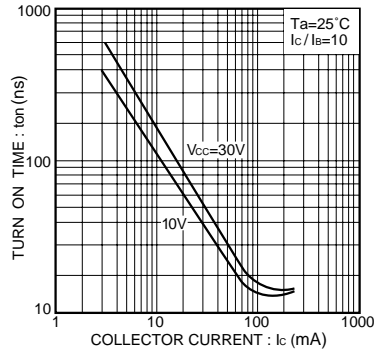


Fig.11 Turn-on time vs. collector current

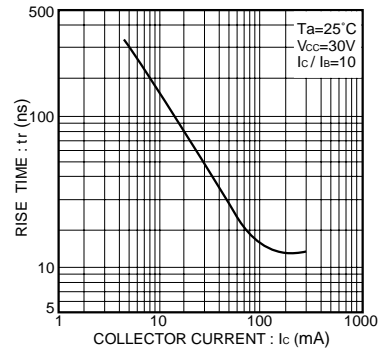


Fig.12 Rise time vs. collector current

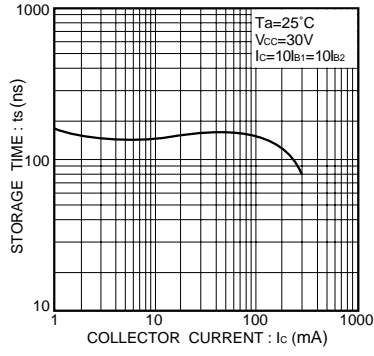


Fig.13 Storage time vs. collector current

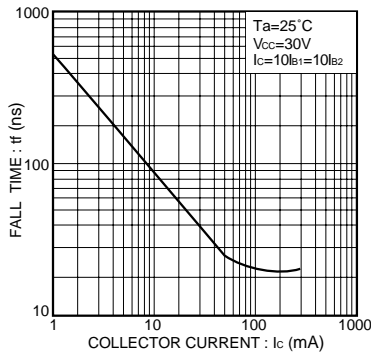


Fig.14 Fall time vs. collector current

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