

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

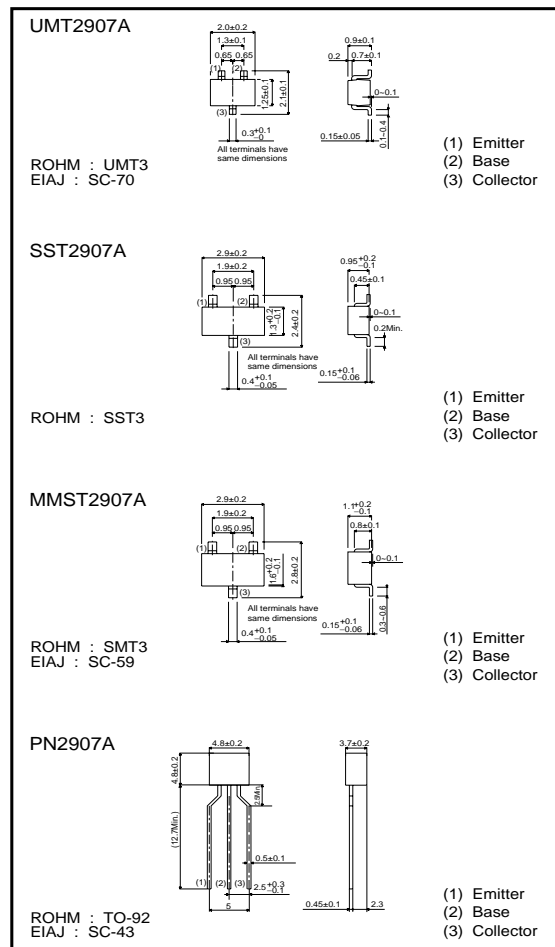
Part No.	UMT2907A	SST2907A	MMST2907A	PN2907A
Packaging type	UMT3	SST3	SMT3	TO-92
Marking	R2F	R2F	R2F	-
Code	T106	T116	T146	T93
Basic ordering unit (pieces)	3000	3000	3000	3000

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

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
	SST2907A		0.35	W *
	PN2907A		0.625	W
Junction temperature	T_J	150	$^\circ C$	
Storage temperature	T_{stg}	-55 to +150	$^\circ C$	

* Mounted on a 7x5x0.6mm ceramic substrate.

●External dimensions (Unit : mm)



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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	-60	-	-	V	I _C = -10μA
Collector-emitter breakdown voltage	BV _{CE0}	-60	-	-	V	I _C = -10mA
Emitter-base breakdown voltage	BV _{EB0}	-5	-	-	V	I _E = -10μA
Collector cutoff current	I _{CB0}	-	-	-100	nA	V _{CB} = -50V
	I _{CE0}	-	-	-100	nA	V _{CE} = -30V
Emitter cutoff current	I _{EB0}	-	-	-100	nA	V _{EB} = -3V
	I _{EC0}	-	-	-100	nA	V _{EC} = -30V
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)}	-	-	-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 _E =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

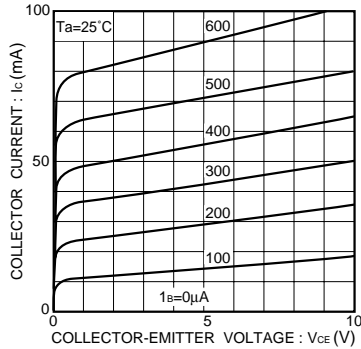


Fig.1 Grounded emitter output characteristics

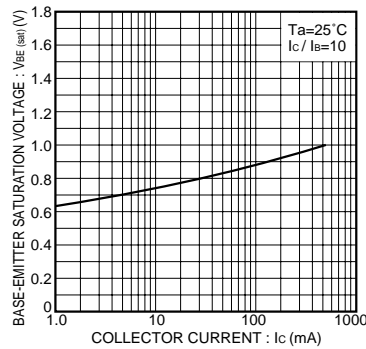


Fig.2 Base-emitter saturation voltage vs. collector current

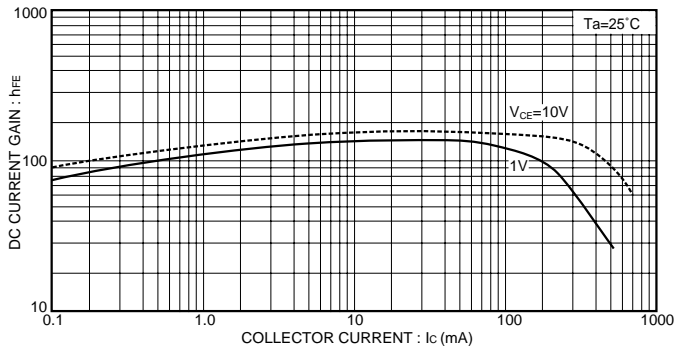


Fig.3 DC current gain vs. collector current (1)

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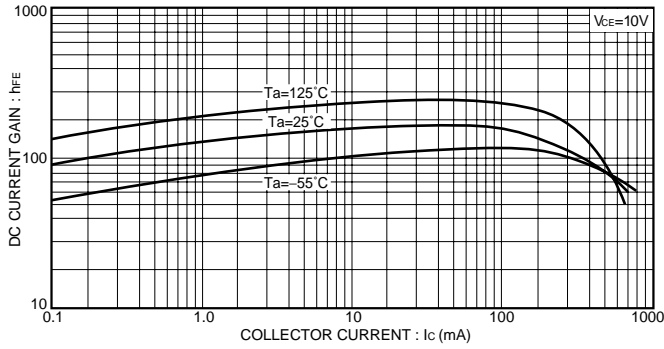


Fig.4 DC current gain vs. collector current (II)

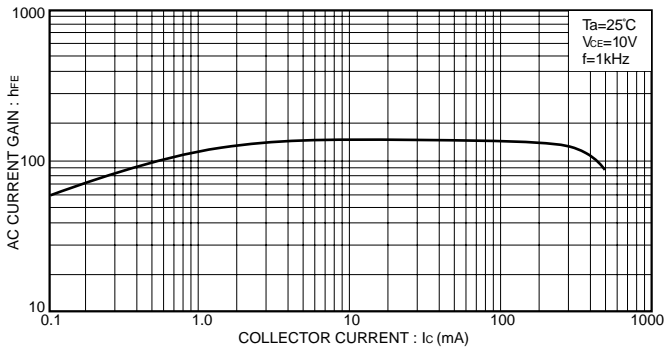


Fig.5 AC current gain vs. collector current

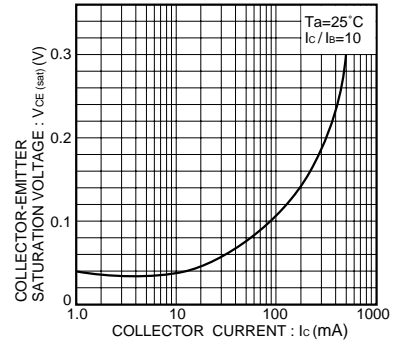


Fig.6 Collector-emitter saturation voltage vs. collector current

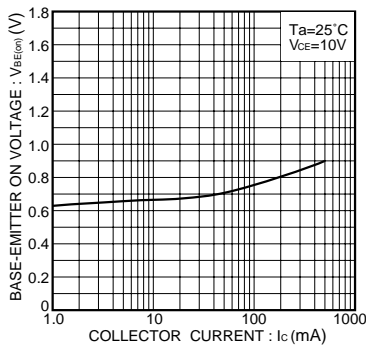


Fig.7 Grounded emitter propagation characteristics

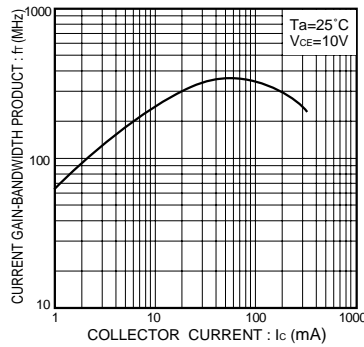


Fig.8 Gain bandwidth product vs. collector current

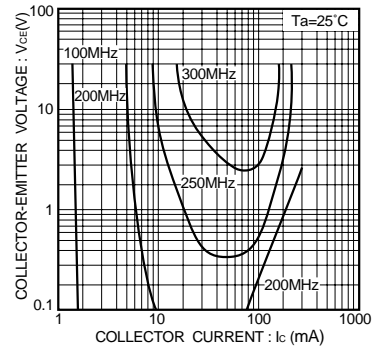


Fig.9 Gain bandwidth product

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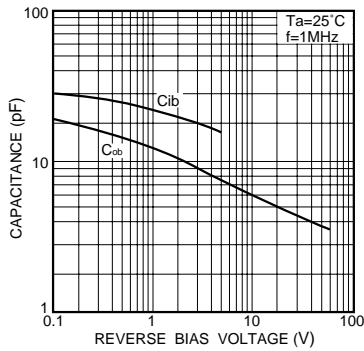


Fig.10 Input/output capacitance vs. voltage

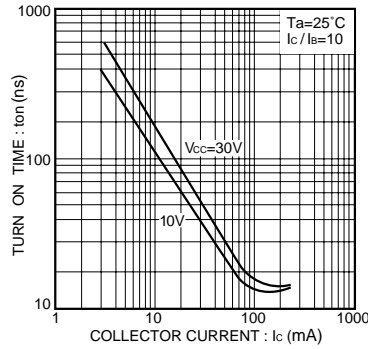


Fig.11 Turn-on time vs. collector current

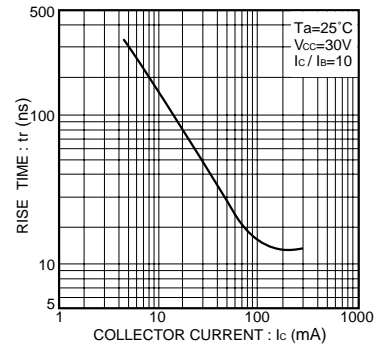


Fig.12 Rise time vs. collector current

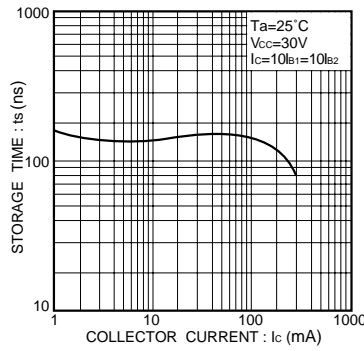


Fig.13 Storage time vs. collector current

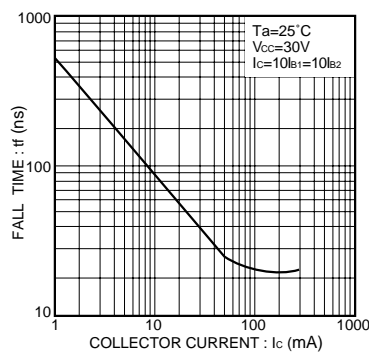


Fig.14 Fall time vs. collector current

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