

# NPN Medium Power Transistor (Switching)

UMT4401 / SST4401 / MMST4401 / 2N4401

●Features

- 1)  $BV_{CE0} < 40V$  ( $I_C = 1mA$ )
- 2) Complements the UMT4403 / SST4403 / MMST4403 / 2N4403.

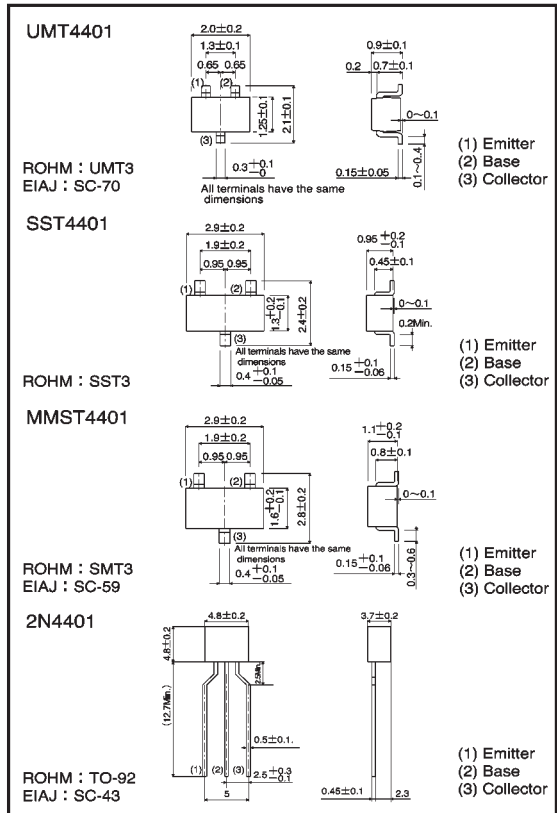
●Package, marking, and packaging specifications

Part No.	UMT4401	SST4401	MMST4401	2N4401
Packaging type	UMT3	SST3	SMT3	TO-92
Marking	R2X	R2X	R2X	—
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	$V_{CE0}$	40	V
Emitter-base voltage	$V_{EB0}$	6	V
Collector current	$I_C$	0.6	A
Collector power dissipation	UMT4401	0.2	W
	SST4401		
	MMST4401		
	2N4401		
Junction temperature	$T_J$	150	$^\circ C$
Storage temperature	$T_{stg}$	$-55 \sim +150$	$^\circ C$

●External dimensions (Units : mm)



●Electrical characteristics ( $T_a = 25^\circ C$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	60	—	—	V	$I_C = 100 \mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	40	—	—	V	$I_C = 1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	6	—	—	V	$I_E = 100 \mu A$
Collector cutoff current	$I_{CBO}$	—	—	0.1	$\mu A$	$V_{CB} = 35V$
Emitter cutoff current	$I_{EBO}$	—	—	0.1	$\mu A$	$V_{EB} = 5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.4	V	$I_C/I_B = 150mA/15mA$
		—	—	0.75	V	$I_C/I_B = 500mA/50mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	0.95	V	$I_C/I_B = 150mA/15mA$
		—	—	1.2	V	$I_C/I_B = 500mA/50mA$
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	$C_{ob}$	—	—	6.5	pF	$V_{CB} = 10V, f = 100kHz$
Emitter input capacitance	$C_{ib}$	—	—	30	pF	$V_{EB} = 0.5V, f = 100kHz$
Delay time	$t_d$	—	—	15	ns	$V_{CC} = 30V, V_{BE(OFF)} = 2V, I_C = 150mA, I_{B1} = 15mA$
Rise time	$t_r$	—	—	20	ns	$V_{CC} = 30V, V_{BE(OFF)} = 2V, I_C = 150mA, I_{B1} = 15mA$
Storage time	$t_{stg}$	—	—	225	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

Refer to pages 621 to 623 for the same UMT2222A/SST2222A/MMST2222A/PN2222A.