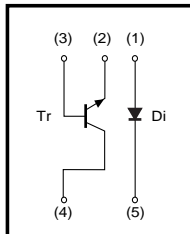


Low-frequency transistor (isolated transistor and diode) UML2N

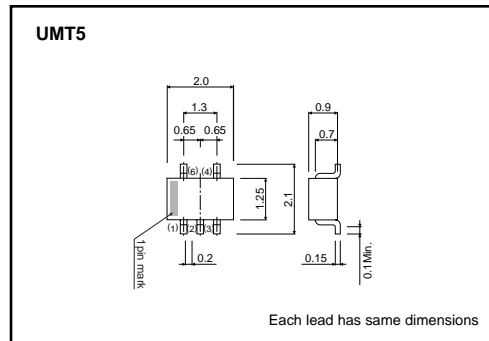
●Features

- 1) The 2SC2412K and a diode are housed independently in a UMT package.

●Equivalent circuit



●External dimensions (Unit : mm)



●Packaging specifications

Part No.	UML2N
Package	UMT5
Marking	L2
Code	TR
Basic ordering unit (pieces)	3000

●Absolute maximum ratings (Ta=25°C)

Tr

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	60	V
Collector-emitter voltage	V_{CE0}	50	V
Emitter-base voltage	V_{EB0}	6	V
Collector current	I_C	0.15	A
Collector power dissipation	P_C	0.15	W
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Di

Parameter	Symbol	Limits	Unit
DC reverse voltage	V_R	80	V
Peak reverse voltage	V_{RM}	80	V
Mean rectifying current	I_O	0.1	A
Peak forward voltage	I_{FM}	0.3	A
Surge current	I_{surge}	4	A
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55 to +150	°C
Specified I/O frequencies	f	100	MHz

Transistors

●Electrical characteristics (Ta=25°C)

Tr

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV _{CEO}	50	–	–	V	I _C =1mA
Collector-base breakdown voltage	BV _{CBO}	60	–	–	V	I _C =50μA
Emitter-base breakdown voltage	BV _{EBO}	6	–	–	V	I _E =50μA
Collector cutoff current	I _{CBO}	–	–	0.1	μA	V _{CB} =60V
Emitter cutoff current	I _{EBO}	–	–	0.1	μA	V _{EB} =5V
Collector-emitter saturation voltage	V _{CE(sat)}	–	–	0.4	V	I _C /I _B =50mA/5mA
DC current transfer ratio	h _{FE}	120	–	560	–	V _{CE} =6V, I _C =1mA
Transition frequency	f _T	–	180	–	MHz	V _{CE} =12V, I _E =–2mA, f=100MHz
Output capacitance	C _{ob}	–	2	3.5	pF	V _{CB} =12V, I _E =0A, f=1MHz

Di

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V _F	–	–	1.2	V	I _F =100mA
Reverse current	I _R	–	–	0.1	μA	V _R =70V
Capacitance between terminals	C _T	–	–	3.5	pF	V _R =6V, f=1MHz
Reverse recovery time	t _{rr}	–	–	4	ns	V _R =6V, I _F =5mA, R _L =50Ω

●Electrical characteristic curves

Tr

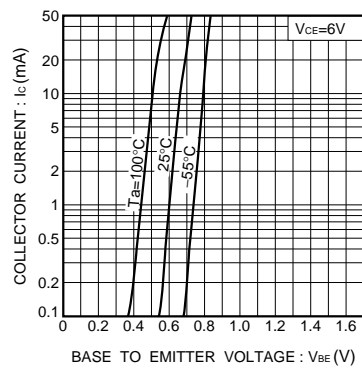


Fig.1 Grounded emitter propagation characteristics

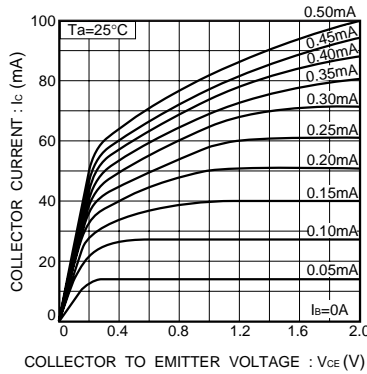


Fig.2 Grounded emitter output characteristics (I)

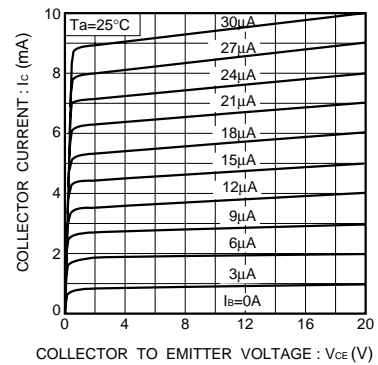


Fig.3 Grounded emitter output characteristics (II)

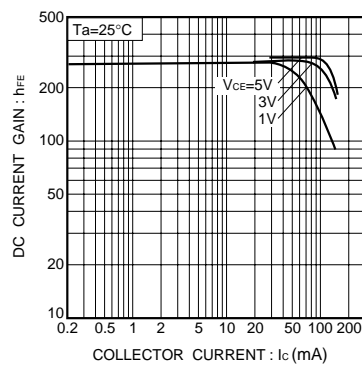


Fig.4 DC current gain vs. collector current (I)

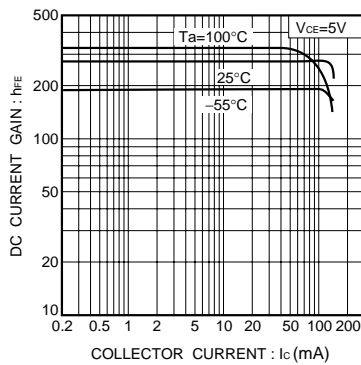


Fig.5 DC current gain vs. collector current (II)

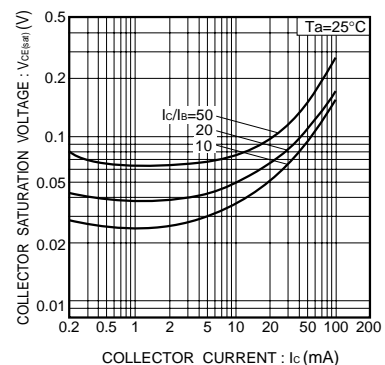


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistors

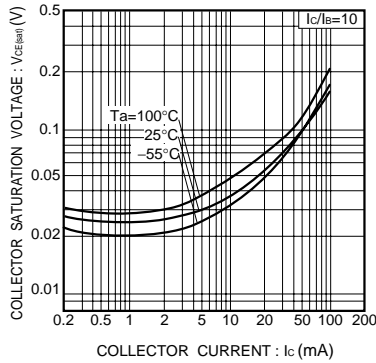


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

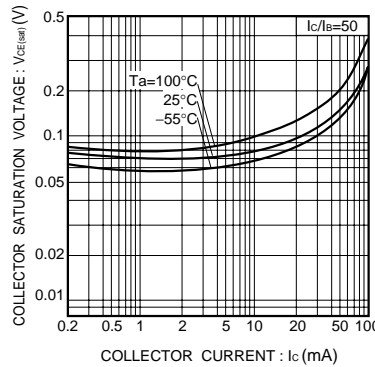


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

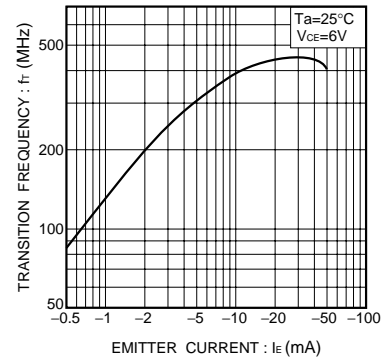


Fig.9 Gain bandwidth product vs. emitter current

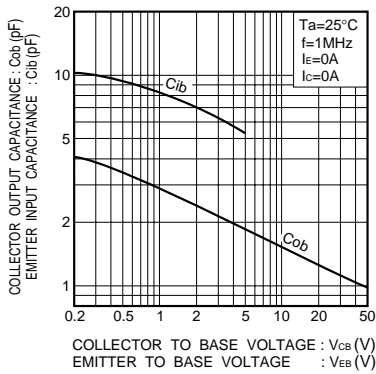


Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

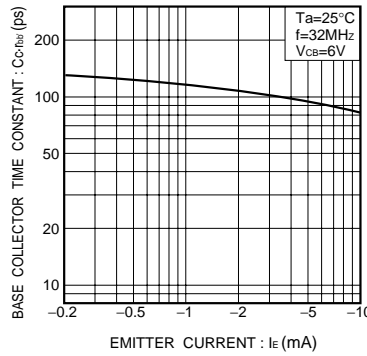


Fig.11 Base-collector time constant vs. emitter current

Di

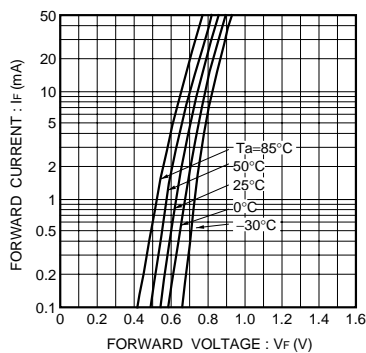


Fig.12 Forward characteristics

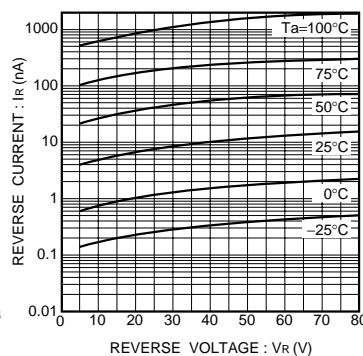


Fig.13 Reverse characteristics

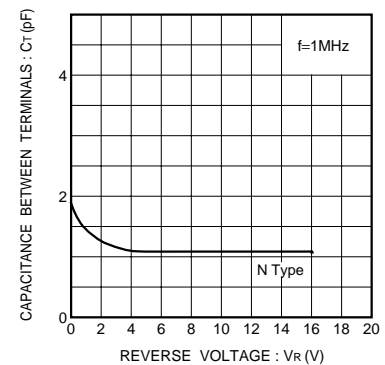


Fig.14 Capacitance between terminals characteristics

Transistors

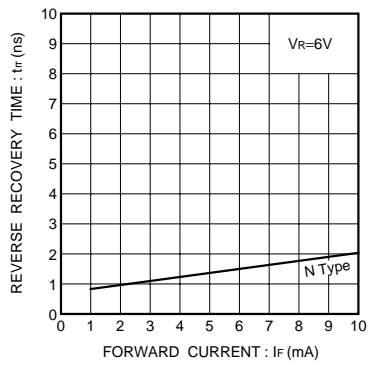


Fig.15 Reverse recovery time

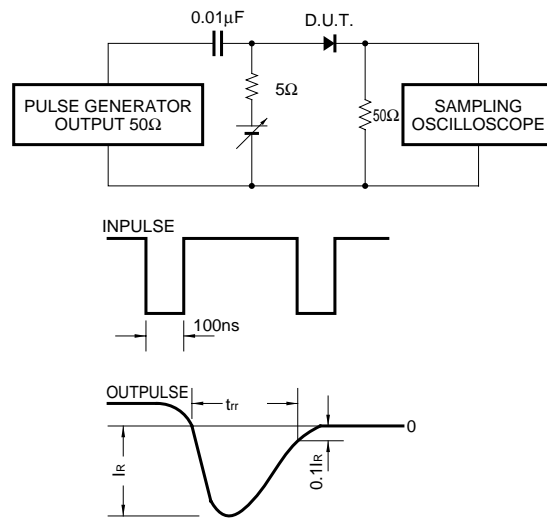


Fig.16 Reverse recovery time (t_{rr}) measurement circuit

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