

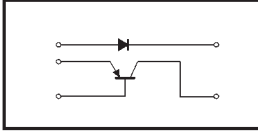
# Low-frequency transistor

## UML1N

### ●Features

- 1) The 2SA1037AK and a diode are housed independently in a UMT package.

### ●Circuit diagram



### ●Package, marking, and packaging specifications

Part No.	UML1N
Package	UMT5
Marking	L1
Code	TR
Basic ordering unit (pieces)	3000

### ●Electrical characteristics (Ta = 25°C)

Tr						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	$BV_{CE0}$	-50	—	—	V	$I_C = -1\text{mA}$
Collector-base breakdown voltage	$BV_{CB0}$	-60	—	—	V	$I_C = -50\ \mu\text{A}$
Emitter-base breakdown voltage	$BV_{EB0}$	-6	—	—	V	$I_E = -50\ \mu\text{A}$
Collector cutoff current	$I_{CBO}$	—	—	-0.1	$\mu\text{A}$	$V_{CB} = -60\text{V}$
Emitter cutoff current	$I_{EBO}$	—	—	-0.1	$\mu\text{A}$	$V_{EB} = -5\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	-0.5	V	$I_C/I_E = -50\text{mA}/-5\text{mA}$
DC current transfer ratio	$h_{FE}$	120	—	560	—	$V_{CE} = -6\text{V}$ , $I_C = -1\text{mA}$
Transition frequency	$f_T$	—	140	—	MHz	$V_{CE} = -12\text{V}$ , $I_E = -2\text{mA}$ , $f = 100\text{MHz}$
Output capacitance	$C_{ob}$	—	4	5	pF	$V_{CB} = -12\text{V}$ , $I_E = 0\text{A}$ , $f = 1\text{MHz}$

### Di

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_F$	—	—	1.2	V	$I_F = 100\text{mA}$
Reverse current	$I_R$	—	—	0.1	$\mu\text{A}$	$V_R = 70\text{V}$
Capacitance between terminals	$C_T$	—	—	3.5	pF	$V_R = 6\text{V}$ , $f = 1\text{MHz}$
Reverse recovery time	$t_{rr}$	—	—	4	ns	$V_R = 6\text{V}$ , $I_F = 5\text{mA}$ , $R_L = 50\ \Omega$

### ●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~+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~+150	°C
Specified I/O frequencies	$f$	100	MHz