

POWER SUPPLY MONITOR DEVICES

EML22/UML23N

●Features

- 1) Packaging Zener diode and small-signal amplifier transistor
- 2) Using outside connection able to use Power supply monitor device
- 3) When use Power supply monitor device, Temperature drift characteristics of detect voltage is about 150 ppm/°C.

●Applications

Protection of over load of power supply.

●Packaging specifications and Marking

Type	EML22	UML23N
Package	EMT6	UMT6
Marking	L22	L23
Code	T2R	TR
Basic ordering unit (pieces)	8000	3000

●Absolute maximum ratings (Ta=25°C)

Tr

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	7	V
Collector current	I_C	150	mA
Power dissipation	P_D^{*1}	120	mW

Di

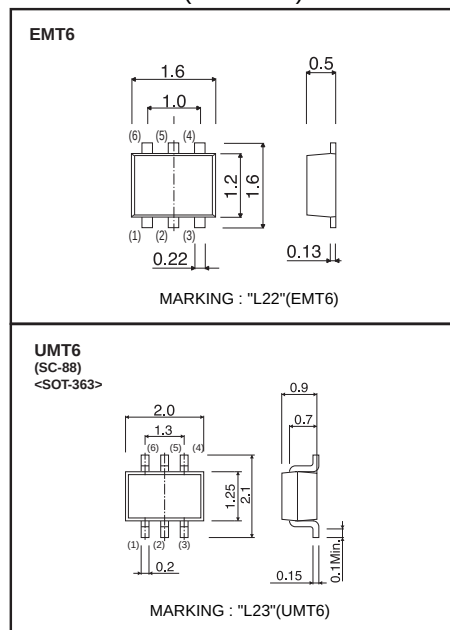
Parameter	Symbol	Limits	Unit
Power dissipation	P_D^{*1}	120	mW

Tr and Di

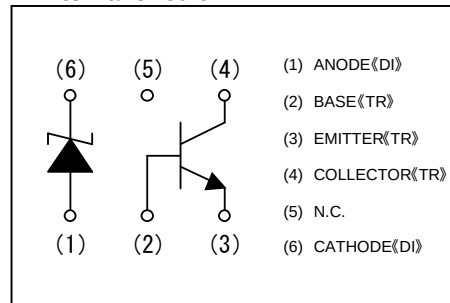
Parameter	Symbol	Limits	Unit
Power dissipation	P_D^{*1}	150	mW
Junction temperature	T_J	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

*1 Mounted on reference land.

● **Dimensions** (Unit : mm)



- Internal circuit



●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	$I_C=50\mu A$
Emitter-base breakdown voltage	BV_{EBO}	7	—	—	V	$I_E=50\mu A$
Collector cut-off current	I_{CBO}	—	—	100	nA	$V_{CB}=60V$
Emitter cut-off current	I_{EBO}	—	—	100	nA	$V_{EB}=7V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	400	mV	$I_C/I_B=50mA/5mA$
DC current gain	h_{FE}	120	—	390	—	$V_{CE}=6V, I_C=1mA$
Transition frequency	f_T	—	180	—	MHz	$V_{CE}=12V, I_E=-2mA$, $f=100MHz$
Output capacitance	C_{ob}	—	2	—	pF	$V_{CB}=12V, I_E=0A$, $f=1MHz$

Di

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Zener voltage	V_Z	6.58	6.80	7.00	V	$I_Z=5mA$
Reverse current	I_R	—	—	0.5	mA	$V_R=3.5V$

●Electrical characteristic curves

<Tr>

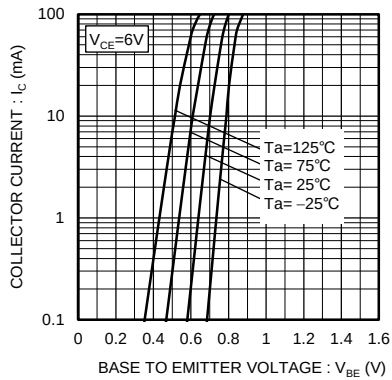


Fig. 1 GROUNDED EMITTER PROPAGATION CHARACTERISTICS

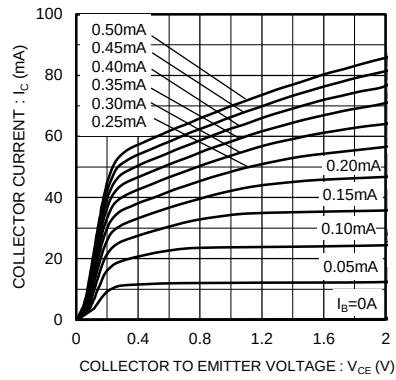


Fig. 2 GROUNDED EMITTER OUTPUT CHARACTERISTICS (I)

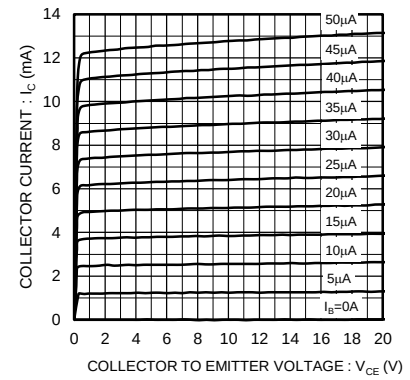


Fig. 3 GROUNDED EMITTER OUTPUT CHARACTERISTICS (II)

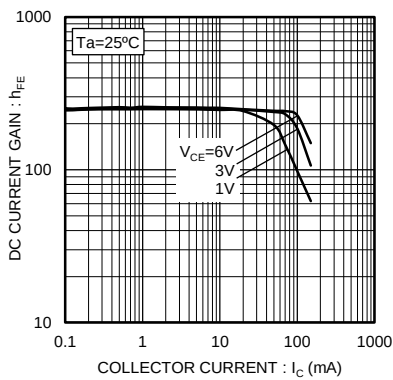


Fig. 4 DC CURRENT GAIN vs. COLLECTOR CURRENT CHARACTERISTICS (I)

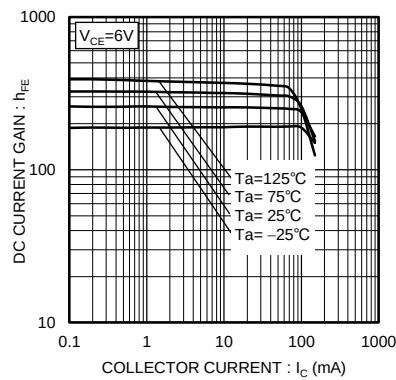


Fig. 5 DC CURRENT GAIN vs. COLLECTOR CURRENT CHARACTERISTICS (II)

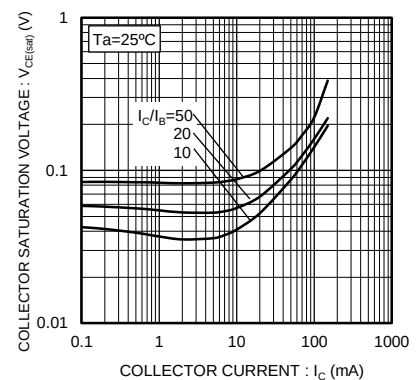


Fig. 6 COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT CHARACTERISTICS (I)

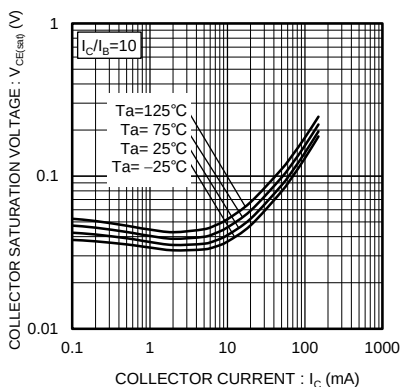


Fig. 7 COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT CHARACTERISTICS (II)

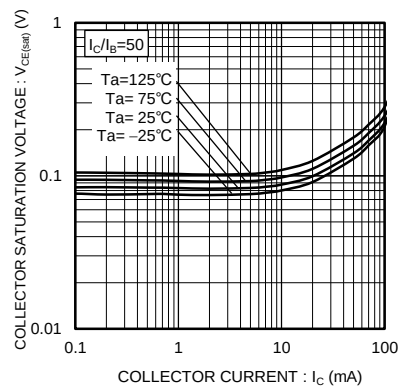


Fig. 8 COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT CHARACTERISTICS (III)

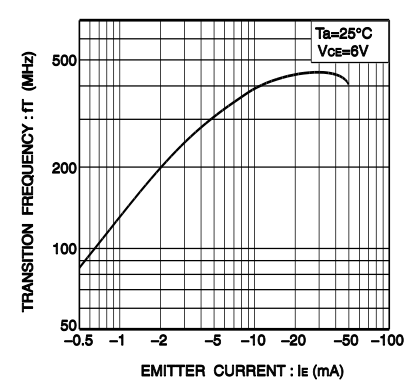
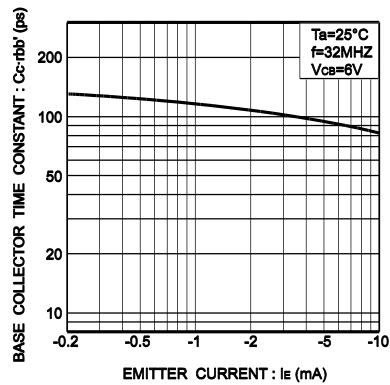
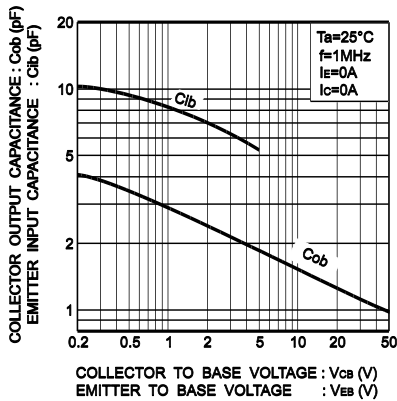
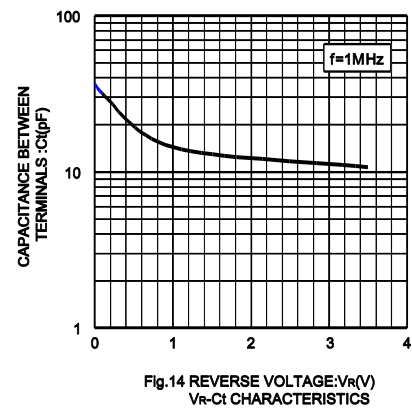
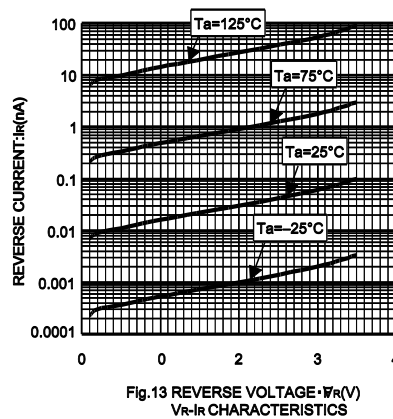
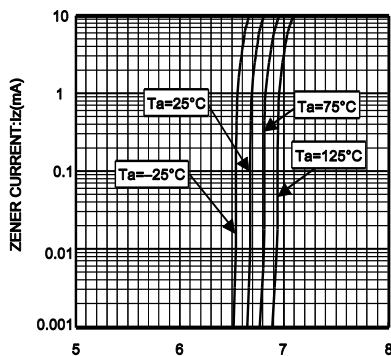


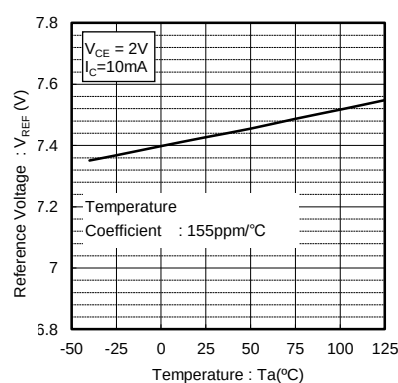
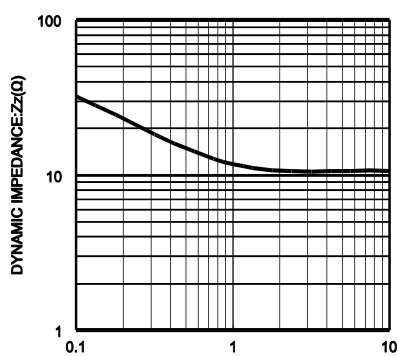
Fig. 9 Gain bandwidth product vs. emitter current



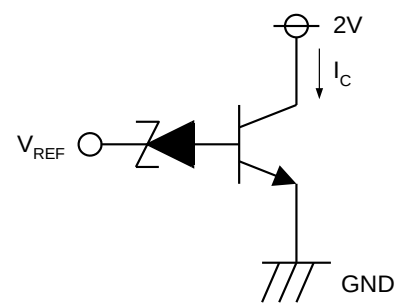
<Di>



<Tr+Di>



●Measurement circuits



Notes

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