

General purpose transistor (isolated transistor and diode)

EML20

DTC123J□A and RB521S-30 are housed independently in a EMT6 package.

●Applications

DC / DC converter
Motor driver

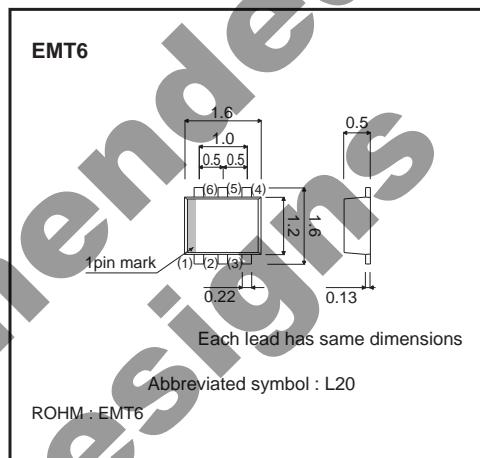
●Features

- 1) Tr : NPN digital transistor
- Di : Low V_F
- 2) Mounting possible with EMT3 automatic mounting machines.

●Structure

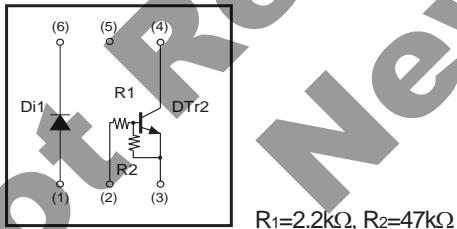
NPN Silicon epitaxial planar digital transistor
Schottky barrier diode

●External dimensions (Unit : mm)



The following characteristics apply to both Di1 and DTr2.

●Equivalent circuit



●Packaging specifications

Type	EML20
Package	EMT6
Marking	L20
Code	T2R
Basic ordering unit (pieces)	8000

Transistors

●Absolute maximum ratings (Ta=25°C)

Di1

Parameter	Symbol	Limits	Unit
Average rectified forward current	I_o	200	mA
Forward current surge peak (60Hz, 1 ∞)	I_{FSM}	1	A
Reverse voltage (DC)	V_R	30	V
Junction temperature	T_j	125	°C

DTr2

Parameter	Symbol	Limits	Unit
Supply voltage	V_{cc}	50	V
Input voltage	V_{IN}	12	V
		-5	
Output current	I_o	100	mA
	$I_C(\text{MAX.})$	100	mA
Power dissipation	P_d	120	mW *
Junction temperature	T_j	150	°C

* Each terminal mounted on a recommended.

Di1 / DTr2

Parameter	Symbol	Limits	Unit
Power dissipation	P_d	150	mW *
Storage temperature	T_{stg}	-55 to +125	°C

* Each terminal mounted on a recommended.

●Electrical characteristics (Ta=25°C)

Di1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_F	—	0.40	0.50	V	$I_F=200\text{mA}$
Reverse current	I_R	—	4.0	30	μA	$V_R=10\text{V}$

DTr2

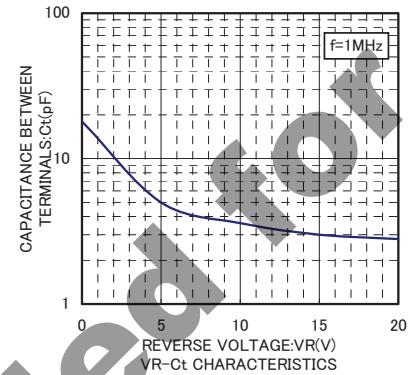
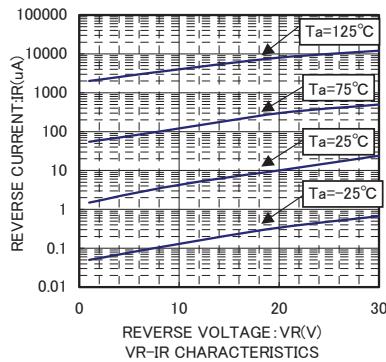
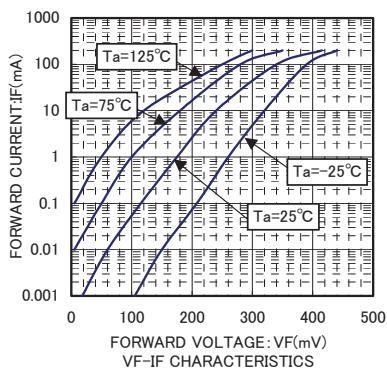
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(\text{off})}$	—	—	0.5	V	$V_{cc}=5\text{V} / I_o=100\mu\text{A}$
	$V_{I(\text{on})}$	1.1	—	—	V	$V_o=0.3\text{V} / I_o=5\text{mA}$
Output voltage	$V_{O(\text{on})}$	—	100	300	mV	$I_o=5\text{mA}, I_i=0.25\text{mA}$
Input current	I_I	—	—	3.6	mA	$V_i=5\text{V}$
Output current	$I_{O(\text{off})}$	—	—	500	nA	$V_{cc}=50\text{V} / V_i=0\text{V}$
DC current gain	G_I	80	—	—	—	$V_o=5\text{V} / I_o=10\text{mA}$
Transition frequency	* f_T	—	250	—	MHz	$V_{CE}=10\text{V} / I_E=-5\text{mA}, f=100\text{MHz}$
Input resistance	R_I	1.54	2.2	2.86	kΩ	—
Resistance ratio	R_2/R_1	17	21	26	—	—

* Characteristics of built-in transistor.

Transistors

● Electrical characteristic curves

Di1



DTr2

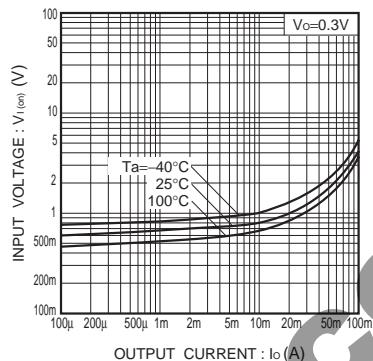


Fig.1 Input voltage vs. output current (ON characteristics)

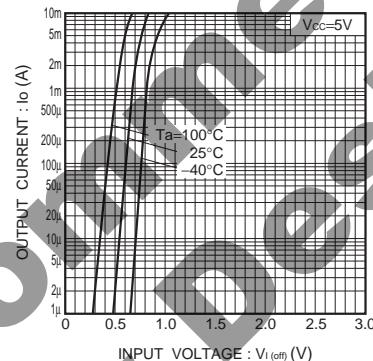


Fig.2 Output current vs. input voltage (OFF characteristics)

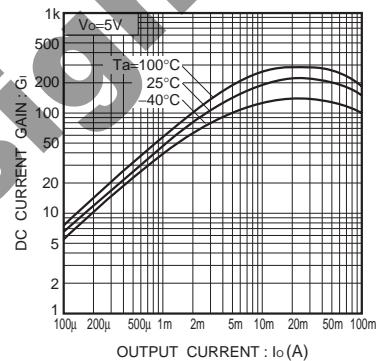


Fig.3 DC current gain vs. output current

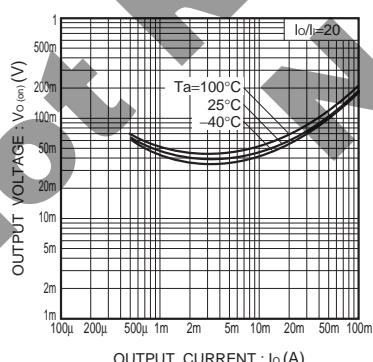


Fig.4 Output voltage vs. output current

Appendix

Notes

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