General purpose transistor (isolated transistor and diode)

EML20

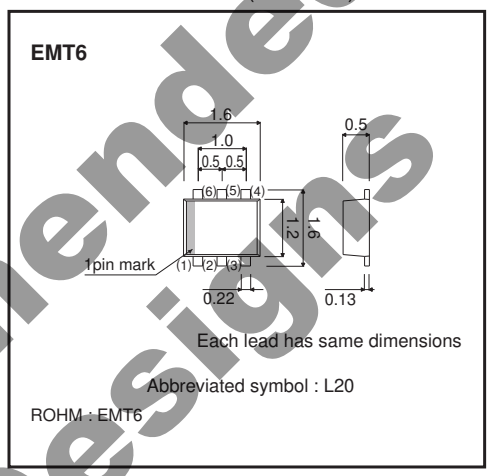
DTC123J A and RB521S-30 are housed independently in a EMT6 package.

●**Applications**
DC / DC converter
Motor driver

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

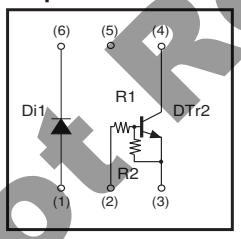
●**Structure**
NPN Silicon epitaxial planar digital transistor
Schottky barrier diode

●**External dimensions** (Unit : mm)



The following characteristics apply to both Di1 and DTr2.

●**Equivalent circuit**



R_1=2.2kΩ, R_2=47kΩ

●**Packaging specifications**

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

●**Absolute maximum ratings** (Ta=25°C)

Di1

Parameter	Symbol	Limits	Unit
Average revtified 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	Tj	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
	$I_{C\ (MAX.)}$	100	mA
Power dissipation	P_d	120	mW *
Junction temperature	Tj	150	°C

* Each terminal mounted on a recommended.

Di1 / DTr2

Parameter	Symbol	Limits	Unit
Power dissipation	P_d	150	mW *
Storage temperature	Tstg	−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=200mA
Reverse current	I_R	–	4.0	30	μA	V_R=10V

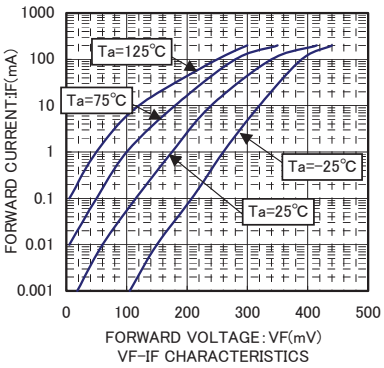
DTr2

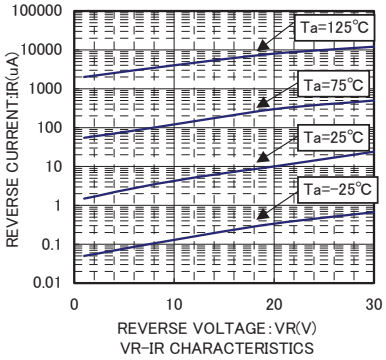
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	0.5	V	V_{CC}=5V / I_O=100uA
	$V_{I(on)}$	1.1	–	–	V	V_O=0.3V / I_O=5mA
Output voltage	$V_{O(on)}$	–	100	300	mV	I_O=5mA, I_I=0.25mA
Input current	II	–	–	3.6	mA	V_I=5V
Output current	$I_{O(off)}$	–	–	500	nA	V_{CC}=50V / V_I=0V
DC current gain	G_I	80	–	–	–	V_O=5V / I_O=10mA
Transition frequency *	f_T	–	250	–	MHz	V_{CE}=10V / I_E= −5mA, f=100MHz
Input resistance	R_1	1.54	2.2	2.86	kΩ	–
Resistance ratio	R_2/R_1	17	21	26	–	–

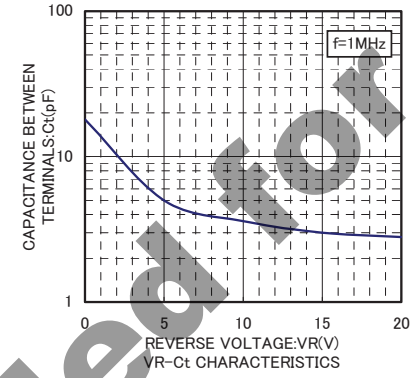
* Characteristics of built-in transistor.

●**Electrical characteristic curves**

Di1







DTr2

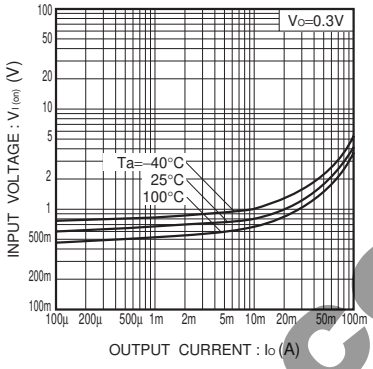


Fig.1 Input voltage vs. output current (ON characteristics)

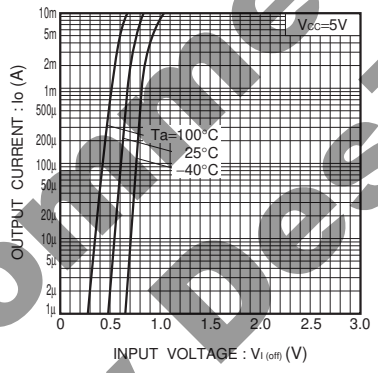


Fig.2 Output current vs. input voltage (OFF characteristics)

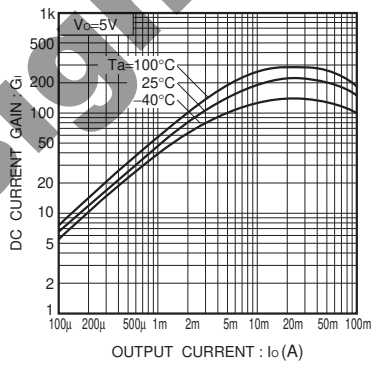


Fig.3 DC current gain vs. output current

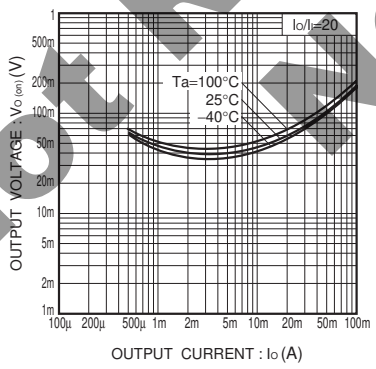


Fig.4 Output voltage vs. output current

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