

General purpose transistor (isolated transistor and diode)

FML10

2SD2652 and a RB461F are housed independently in a UMT package.

●Applications

DC / DC converter
Motor driver

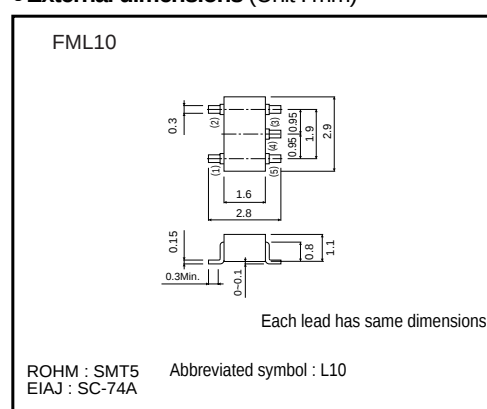
●Features

- 1) Tr1: Low $V_{CE}(\text{sat})$
Di : Low V_F
- 2) Small package

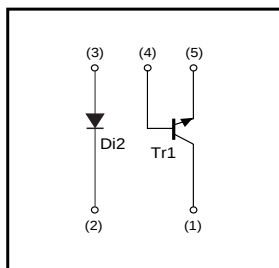
●Structure

Silicon epitaxial planar transistor
Schottky barrier diode

●External dimensions (Unit : mm)



●Equivalent circuit



●Packaging specifications

Type	FML10
Package	SMT5
Marking	L10
Code	TR
Basic ordering unit(pieces)	3000

Transistors

●Absolute maximum ratings (Ta=25°C)

Tr1

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CBO}	15	V
Collector-emitter voltage	V _{CEO}	12	V
Emitter-base voltage	V _{EBO}	6	V
Collector current	I _C	1.5	A
	I _{CP}	3	A *
Power dissipation	P _C	200	mW
Junction temperature	T _j	150	°C
Range of storage temperature	T _{stg}	−40 to +125	°C

*Single pulse, P_w=1ms

Di2

Parameter	Symbol	Limits	Unit
Peak reverse voltage	V _{RM}	25	V
Average rectified forward current	I _F	700	mA
Forward current surge peak (60Hz, 1∞)	I _{FSM}	3	A
Reverse voltage (DC)	V _R	20	V
Junction temperature	T _j	125	°C
Range of storage temperature	T _{stg}	−40 to +125	°C

●Electrical characteristics (Ta=25°C)

Tr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CBO}	15	–	–	V	I _C =10μA
Collector-emitter breakdown voltage	BV _{CEO}	12	–	–	V	I _C =1mA
Emitter-base breakdown voltage	BV _{EBO}	6	–	–	V	I _E =10μA
Collector cutoff current	I _{CBO}	–	–	100	nA	V _{CB} =15V
Emitter cutoff current	I _{EBO}	–	–	100	nA	V _{EB} =6V
Collector-emitter saturation voltage	V _{CE(sat)}	–	85	200	mV	I _C /I _B =500mA/25mA
DC current gain	h _{FE}	270	–	680	–	V _{CE} /I _C =2V/200mA *
Transition frequency	f _T	–	400	–	MHz	V _{CE} =2V, I _E = −200mA, f=100MHz *
Collector output capacitance	C _{ob}	–	12	–	pF	V _{CB} =10V, I _E =0A, f=1MHz

*Pulsed

Di2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V _F	–	–	490	mV	I _F =700mA
Reverse current	I _R	–	–	200	μA	V _R =20V

Transistors

●Electrical characteristic curves

Tr1

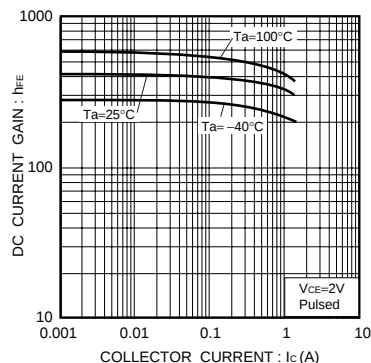
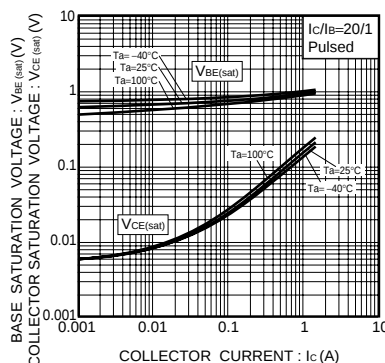
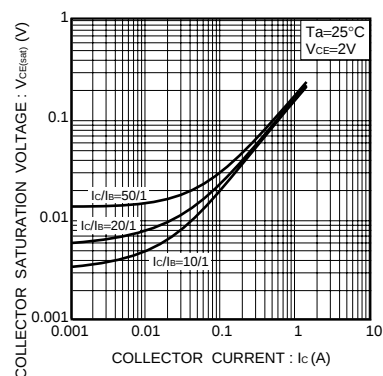
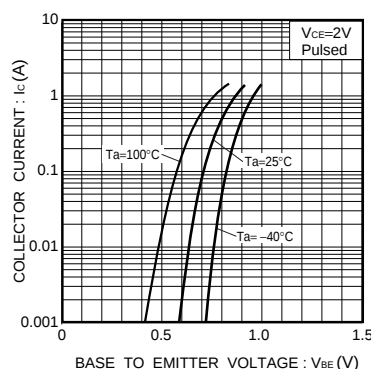
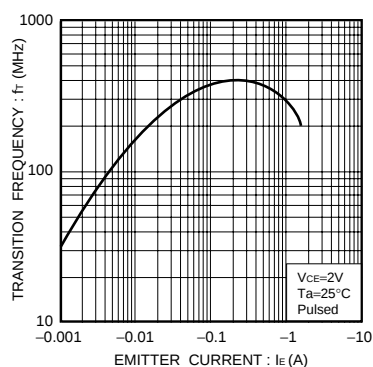
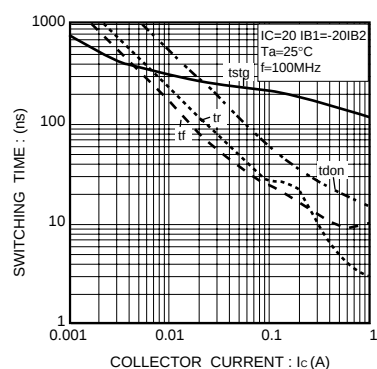
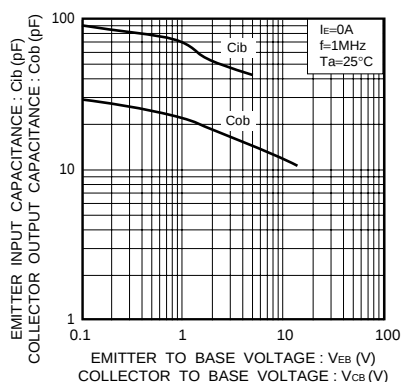
Fig.1 DC current gain
vs. collector currentFig.2 Collector-emitter saturation voltage
base-emitter saturation voltage
vs. collector currentFig.3 Collector-emitter saturation voltage
vs. collector currentFig.4 Grounded emitter propagation
characteristicsFig.5 Gain bandwidth product
vs. emitter current

Fig.6 Switching time

Fig.7 Collector output capacitance
vs. collector-base voltage
Emitter input capacitance
vs. emitter-base voltage

Transistors

Di2

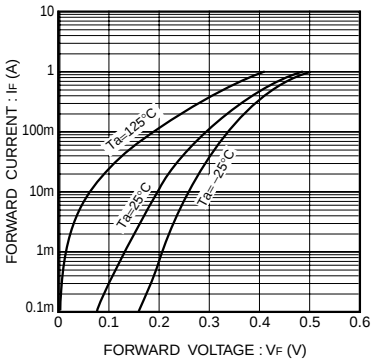


Fig.9 Forward characteristics

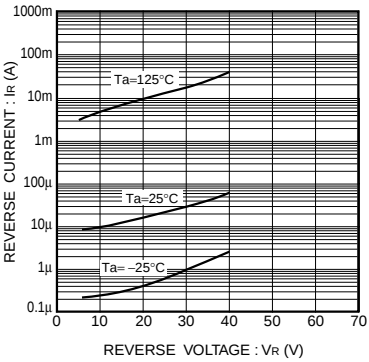


Fig.10 Reverse characteristics

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