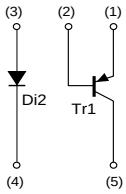
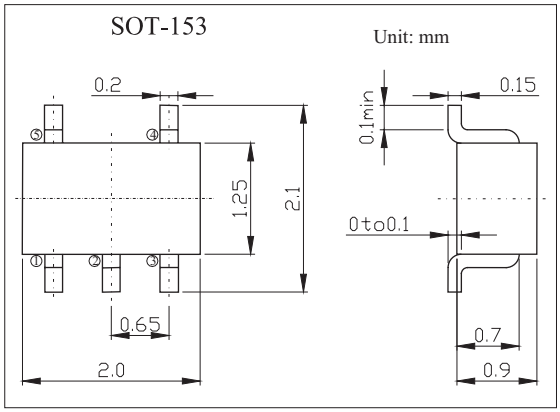
General purpose transistor (isolated transistor and diode) FML9

■ Features

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





■ Absolute Maximum Ratings Ta = 25℃

Tr1			
Parameter	Symbol	Rating	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
Power dissipation	P_D	200	mW
Operating and Storage and Temperature Range	T_j, T_{STG}	-40 to +125	℃

Di2			
Parameter	Symbol	Rating	Unit
Reak reverse voltage	V_{RM}	25	V
Reverse voltage (DC)	V_R	20	V
Average rectified forward current	I_F	700	mA
Forward current surge peak (60HZ, 1∞)	I_{FSM}	3	A
Operating and Storage and Temperature Range	T_j, T_{STG}	-40 to +125	℃

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Transistor TR1						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = -10 μA, I_E = 0	-15			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = -1 mA, I_B = 0	-12			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_C = -10 μA, I_C = 0	-6			V
Collector cutoff current	I_{CBO}	V_{CB}=-15V, I_E=0			-100	nA
Emitter cutoff current	I_{EBO}	V_{EB}=-6V, I_C=0			-100	nA
DC current gain	h_{FE}	V_{CE}=-2V, I_C= -200mA	270		680	
collector-emitter saturation voltage *	$V_{CE(sat)}$	I_C = -500 mA; I_B = -25 mA			-0.2	V
Transition frequency	f_T	I_C = -200 mA; V_{CE} = -2 V; f = 100 MHz		400		MHz
Collector output capacitance	C_{ob}	V_{CB}=-10V, I_E=0A, f=1MHz		12		pF
Di2						
Forward voltage	V_F	I_F=700mA			490	mV
Reverse current	I_R	V_R=20V			200	μA

* pulse test: Pulse Width ≤300μs, Duty Cycle≤ 2.0%.

■ Marking

Marking	L9

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■ Typical Characteristics

Tr1

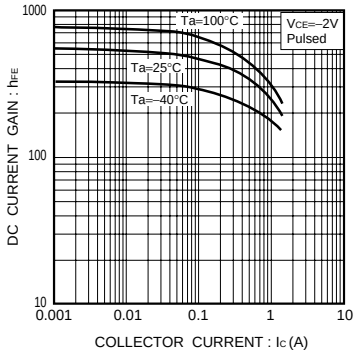

Fig.1 DC current gain vs. collector current

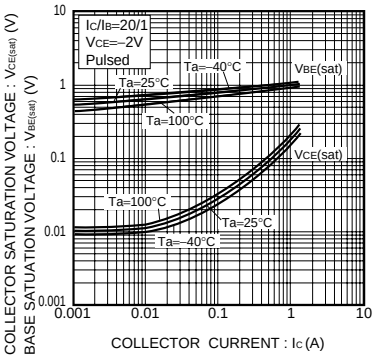

Fig.2 Base-emitter saturation voltage vs. collector current

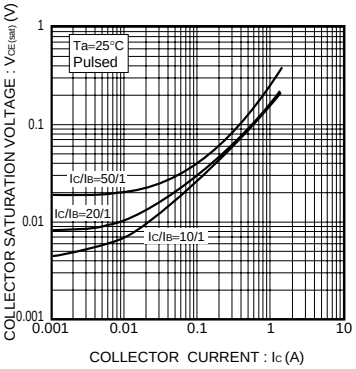

Fig.3 Collector-emitter saturation voltage vs. collector current

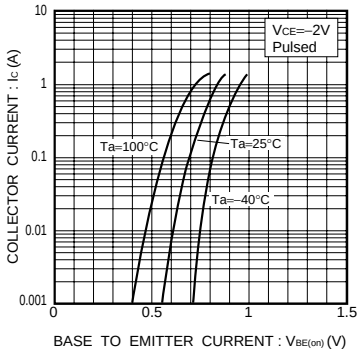

Fig.4 Grounded emitter propagation characteristics

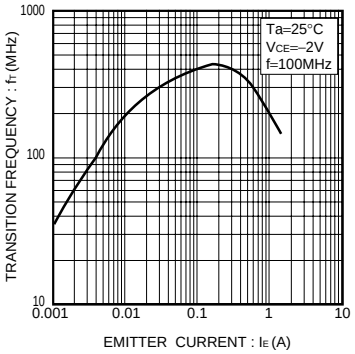

Fig.5 Gain bandwidth product vs. emitter current

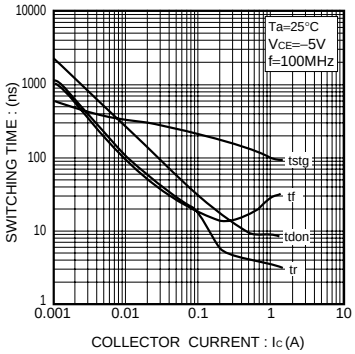

Fig.6 Switching time

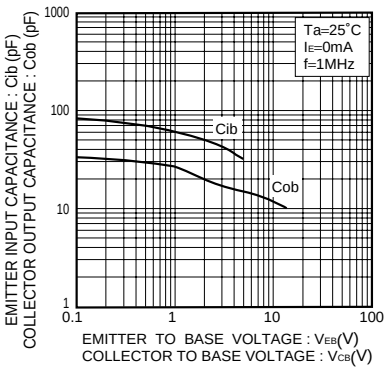

Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

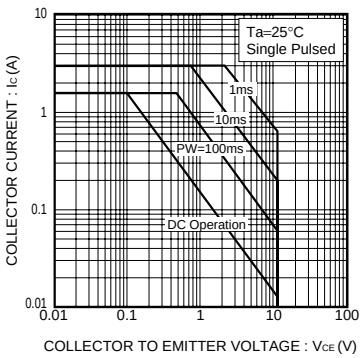

Fig.8 Safe operation area

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■ Typical Characteristics

Di2

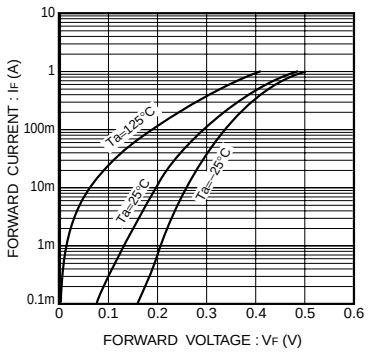

Fig.9 Forward characteristics

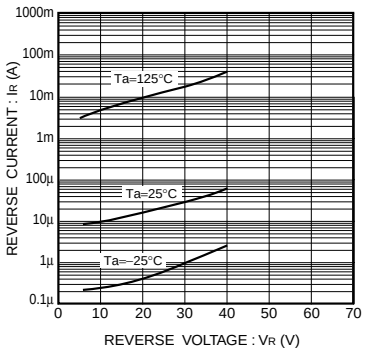

Fig.10 Reverse characteristics