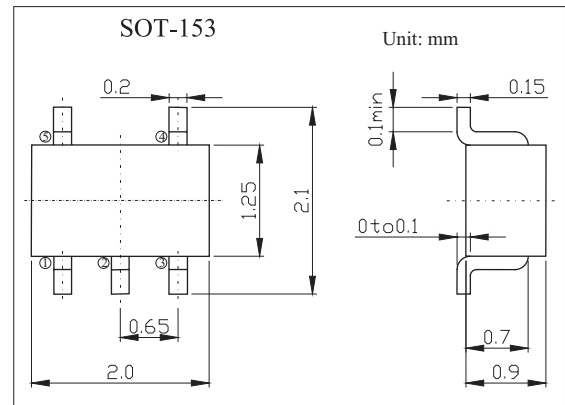
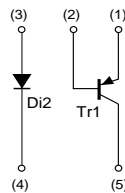


General purpose transistor (isolated transistor and diode)

FML9

■ Features

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



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

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	$^\circ\text{C}$

Di2			
Parameter	Symbol	Rating	Unit
Peak 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	$^\circ\text{C}$

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■ Electrical Characteristics Ta = 25°C

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

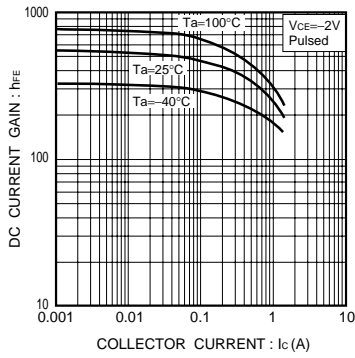


Fig.1 DC current gain vs. collector current

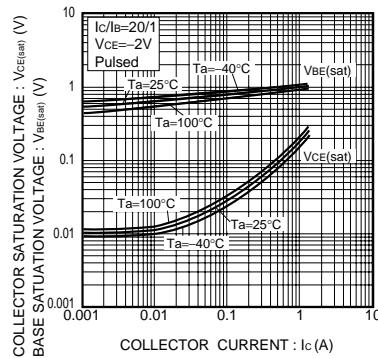


Fig.2 Base-emitter saturation voltage vs. collector current

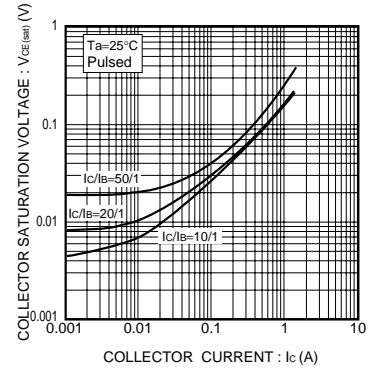


Fig.3 Collector-emitter saturation voltage vs. collector current

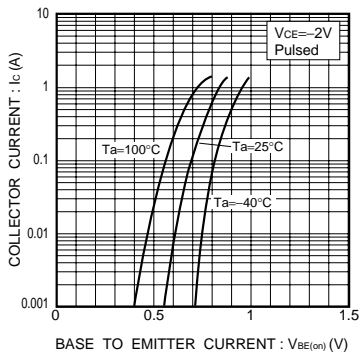


Fig.4 Grounded emitter propagation characteristics

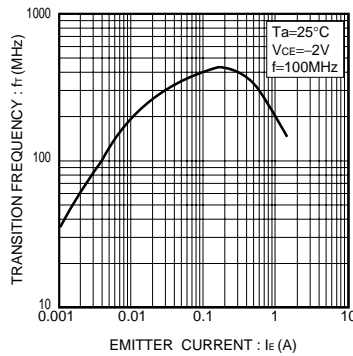


Fig.5 Gain bandwidth product vs. emitter current

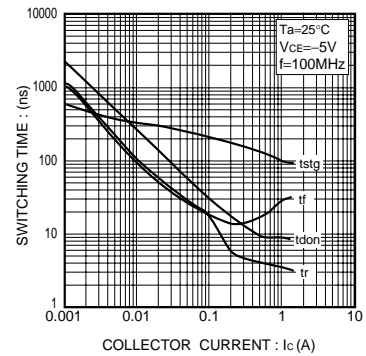


Fig.6 Switching time

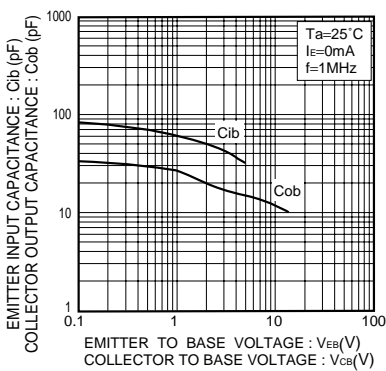


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

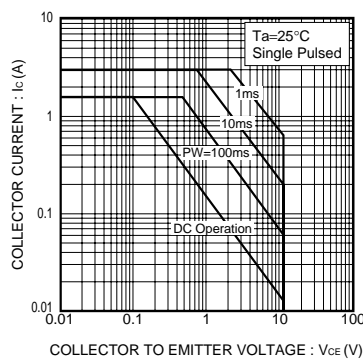


Fig.8 Safe operation area

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■ Typical Characteristics

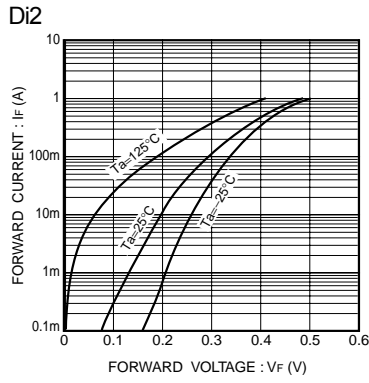


Fig.9 Forward characteristics

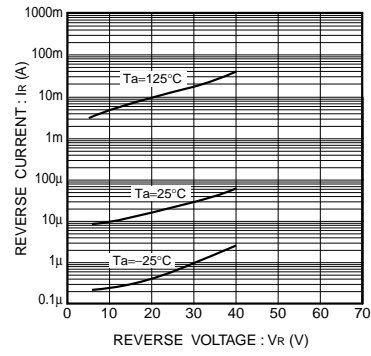


Fig.10 Reverse characteristics