

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (PCT PROCESS)

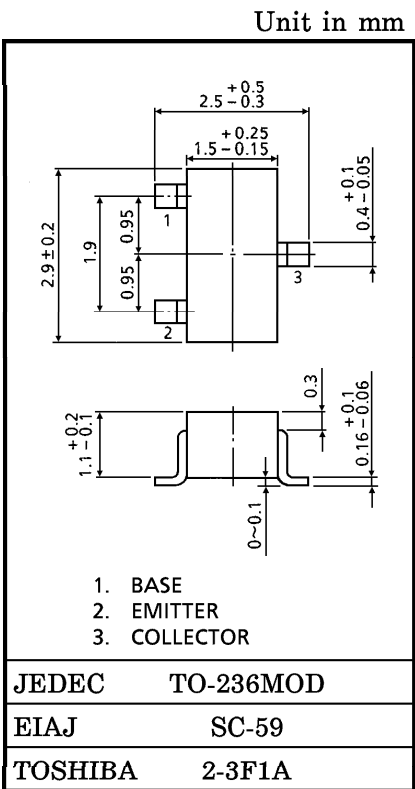
2SC3138

HIGH VOLTAGE SWITCHING APPLICATIONS

- High Voltage : $V_{CBO} = 200\text{ V (Max.)}$
 $V_{CEO} = 200\text{ V (Max.)}$
- Small Flat Package
- Complementary to 2SA1255

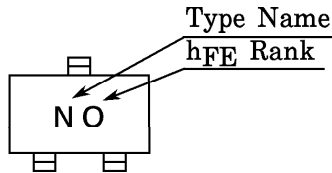
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	200	V
Collector-Emitter Voltage	V_{CEO}	200	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	50	mA
Base Current	I_B	20	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	-55~125	°C



Weight : 0.012 g

MARKING



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 200\text{ V}, I_E = 0$	—	—	0.1	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	0.1	μA
Collector-Base Breakdown Voltage		$V_{(BR) CBO}$	$I_C = 0.1\text{ mA}, I_E = 0$	200	—	—	V
Collector-Emitter Breakdown Voltage		$V_{(BR) CEO}$	$I_C = 1\text{ mA}, I_B = 0$	200	—	—	V
DC Current Gain		h_{FE} (Note)	$V_{CE} = 3\text{ V}, I_C = 10\text{ mA}$	70	—	240	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$	—	0.1	0.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$	—	0.75	1.5	V
Transition Frequency		f_T	$V_{CE} = 10\text{ V}, I_C = 2\text{ mA}$	50	100	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	2	4	pF
Switching Time	Turn on Time	t_{on}	$V_{CC} = 50\text{ V}, I_C = 6\text{ mA},$ $I_{B1} = -I_{B2} = 0.6\text{ mA},$ Pulse Width = 5 $\mu\text{s},$ Duty Cycle $\leq 2\%$	—	0.3	—	μs
	Storage Time	t_{stg}		—	2	—	
	Fall Time	t_f		—	0.4	—	

(Note) : h_{FE} Classification O : 70~140, Y : 120~240

