

**2SD1838****Driver Applications****Applications**

- Suitable for use in switching of L load (motor drivers, printer hammer drivers, relay drivers).

Features

- High DC current gain.
- Large current capacity
- Wide ASO.
- On-chip Zener diode of $60\pm 10\text{V}$ between collector and base.
- Uniformity in collector-to-base breakdown voltage due to adoption of accurate impurity diffusion process.
- High inductive load handling capability.
- Micaless package facilitating mounting.

Specifications**Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$**

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		50*	V
Collector-to-Emitter Voltage	V_{CEO}		50*	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		5	A
Collector Current (Pulse)	I_{CP}		8	A
Base Current	I_B		0.5	A
Collector Dissipation	P_C		2.0	W
		$T_c=25^\circ\text{C}$	25	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

* : With Zener diode of $(60\pm 10\text{V})$.**Electrical Characteristics at $T_a = 25^\circ\text{C}$**

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=40\text{V}, I_E=0$			100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			3	mA
DC Current Gain	h_{FE}	$V_{CE}=3\text{V}, I_C=2.5\text{A}$	1000	4000		
Gain-Bandwidth Product	f_T	$V_{CE}=5\text{V}, I_C=2.5\text{A}$		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2.5\text{A}, I_B=5\text{mA}$		0.9	1.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2.5\text{A}, I_B=5\text{mA}$			2.0	V

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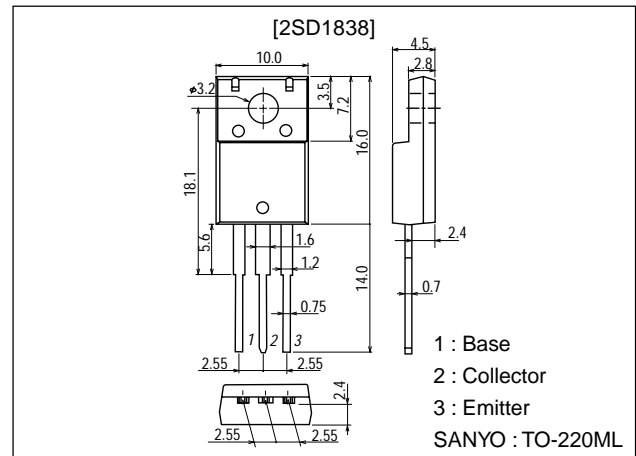
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22599TH (KT)/91096TS (KOTO) 8-2061/4277TA, TS No.2230-1/4

Package Dimensions

unit:mm

2041A

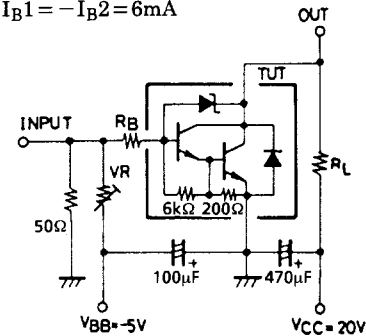


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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=5mA, I_E=0$	50	60	70	V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=50mA, R_{BE}=\infty$	50	60	70	V
Inductive Load Handling Capability	Es/b	$L=100mH, R_{BE}=100\Omega$	50			mJ
Rise Time	t_{on}	See specified Test Circuit. $V_{CC}=20V, I_C=3.0A, I_{B1}=-I_{B2}=6mA$		0.6		μs
Storage Time	t_{stg}	See specified Test Circuit. $V_{CC}=20V, I_C=3.0A, I_{B1}=-I_{B2}=6mA$		4.0		μs
Fall Time	t_f	See specified Test Circuit. $V_{CC}=20V, I_C=3.0A, I_{B1}=-I_{B2}=6mA$		1.5		μs

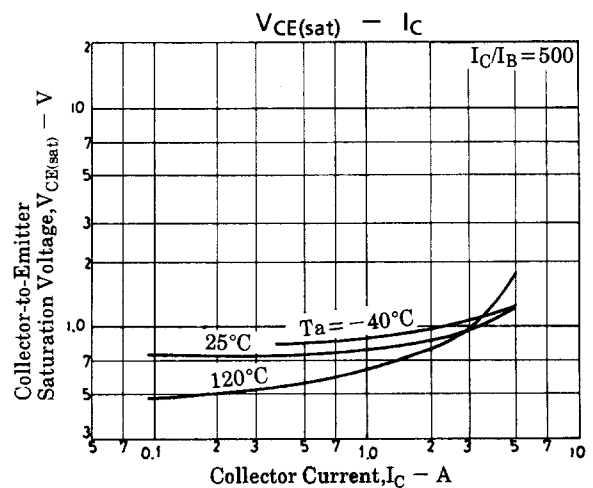
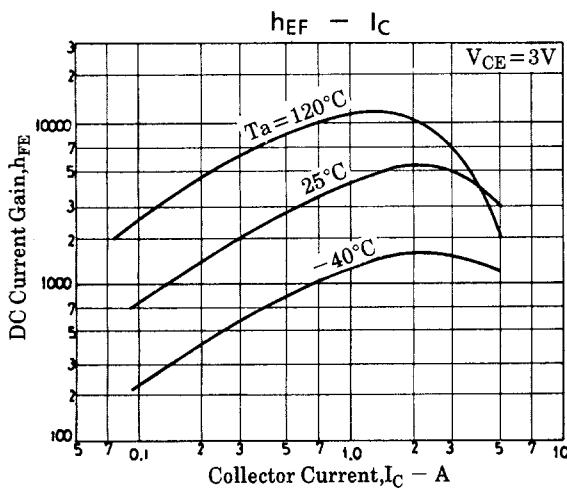
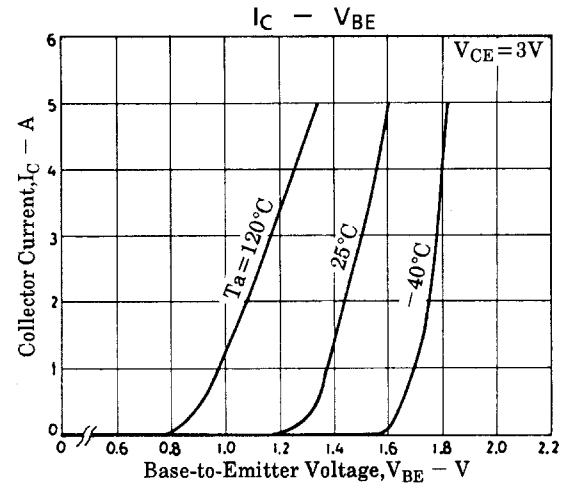
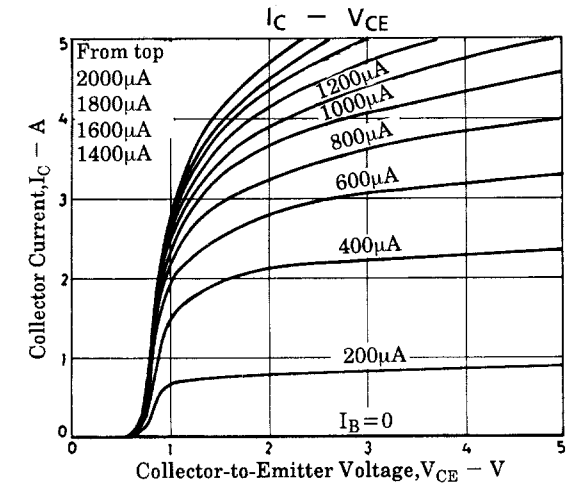
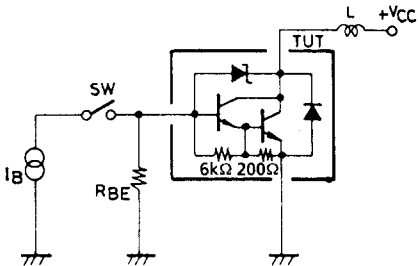
Specified Test Circuit

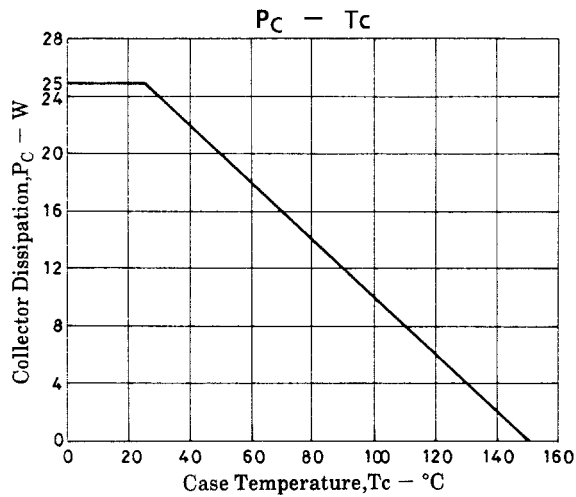
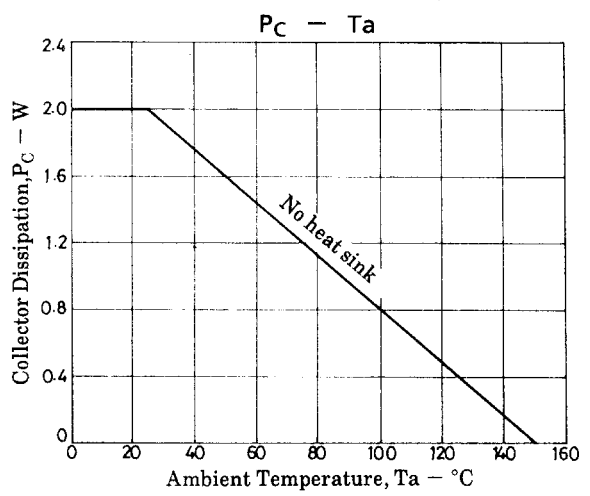
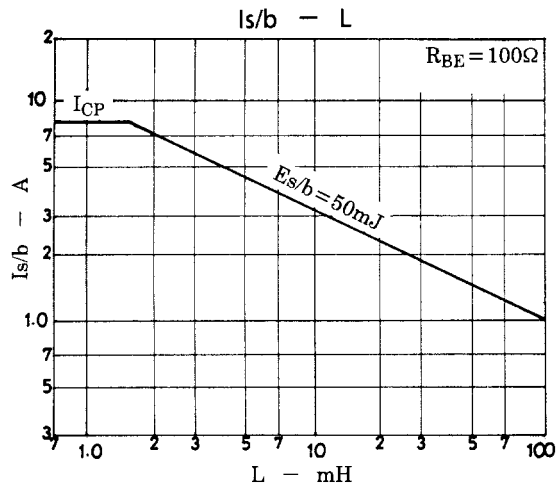
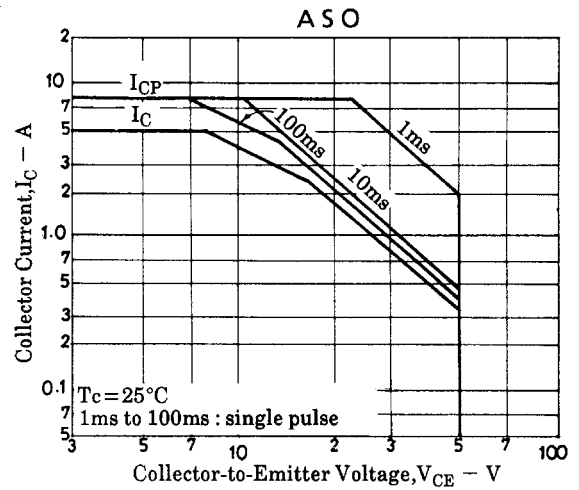
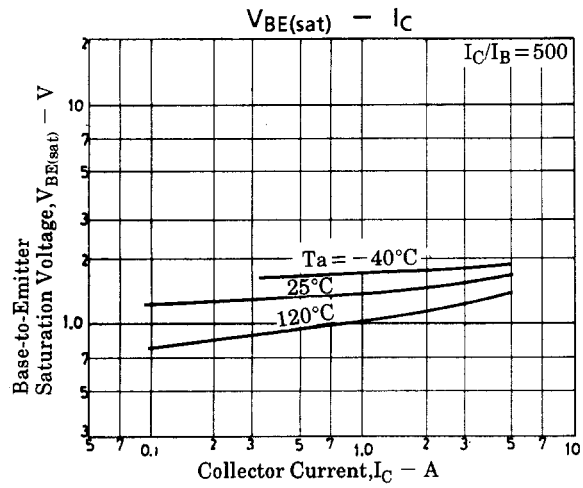
PW = 50 μ s, Duty Cycle \leq 1%
 $I_{B1} = -I_{B2} = 6mA$



Es/b Test Circuit

$V_{CC}=20V, R_{BE}=100\Omega$
 $L=100mH$





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