

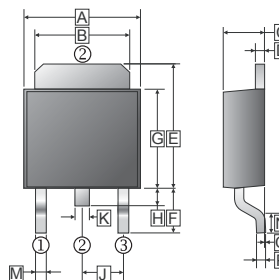
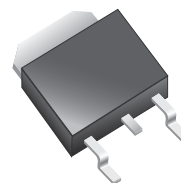
## DESCRIPTION

The CZD5103 is designed for high speed switching applications.

## FEATURES

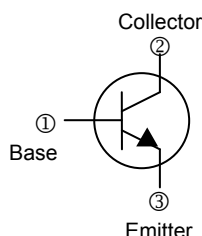
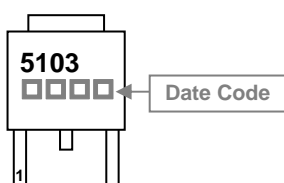
- Low saturation voltage, typically  $V_{CE(sat)} = 0.15V$  at  $I_C/I_B = 3A/0.15A$
- High speed switching, typically  $T_f = 0.1\mu s$  at  $I_C = 3A$
- Wide SOA
- Complements to CZD1952

## D-Pack (TO-252)

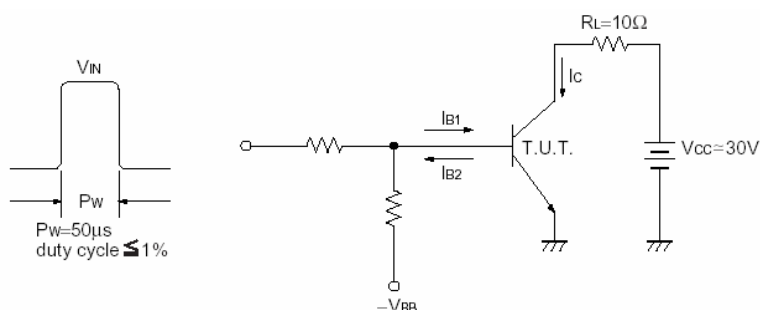


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.4	6.8	J	2.30 REF.	
B	5.20	5.50	K	0.70	0.90
C	2.20	2.40	M	0.50	1.1
D	0.45	0.58	N	0.9	1.6
E	6.8	7.3	O	0	0.15
F	2.40	3.0	P	0.43	0.58
G	5.40	6.2			
H	0.8	1.20			

## MARKING



## SWITCHING TIME TEST CIRCUIT



## ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ )

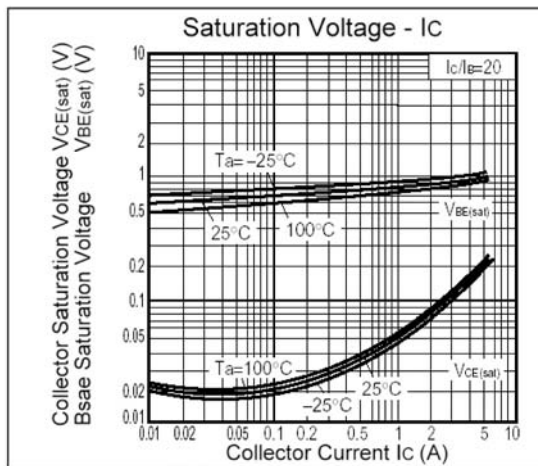
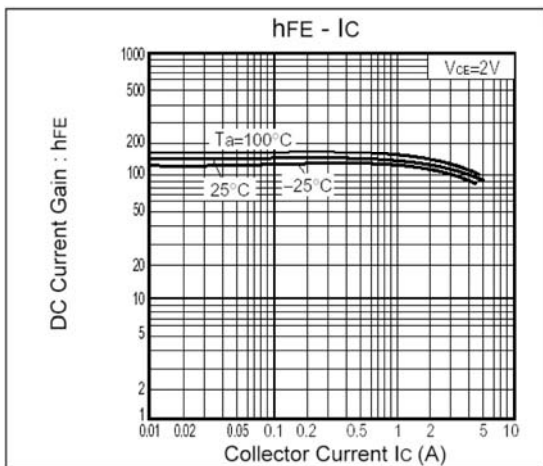
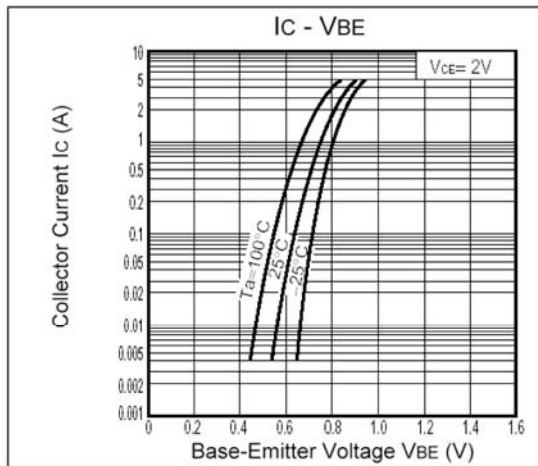
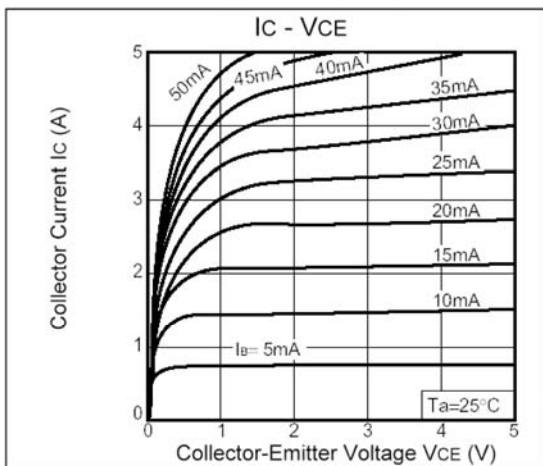
Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	$V_{CBO}$	100	V
Collector to Emitter Voltage	$V_{CEO}$	60	V
Emitter to Base Voltage	$V_{EBO}$	5	V
Collector Current (DC)	$I_C$	6	A
Collector Current (Pulse)	$I_C$	20	A
Total Device Dissipation ( $T_A = 25^\circ C$ )	$P_D$	1	W
Total Device Dissipation ( $T_C = 25^\circ C$ )	$P_D$	10	W
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{STG}$	-55 ~ 150	$^\circ C$

**ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	100	-	-	V	$I_C=50\text{ A}, I_E=0$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	60	-	-	V	$I_C=1\text{mA}, I_B=0$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	5	-	-	V	$I_E=50\text{ A}, I_C=0$
Collector cut-off current	$I_{CBO}$	-	-	10	A	$V_{CB}=100\text{V}, I_E=0$
Emitter cut-off current	$I_{EBO}$	-	-	10	A	$V_{EB}=5\text{V}, I_C=0$
Collector-emitter saturation voltage	* $V_{CE(sat)1}$	-	0.15	0.3	V	$I_C=3\text{A}, I_B=0.15\text{A}$
	* $V_{CE(sat)2}$	-	-	0.5	V	$I_C=4\text{A}, I_B=0.2\text{A}$
Base-emitter saturation voltage	* $V_{BE(sat)1}$	-	-	1.2	V	$I_C=3\text{A}, I_B=0.15\text{A}$
	* $V_{BE(sat)2}$	-	-	1.5	V	$I_C=4\text{A}, I_B=0.2\text{A}$
*DC current gain	* $h_{FE1}$	120	-	270		$V_{CE}=2\text{V}, I_C=1\text{A}$
	* $h_{FE2}$	40	-	-		$V_{CE}=2\text{V}, I_C=3\text{A}$
Transition frequency	$f_T$	-	210	-	MHz	$V_{CB}=10\text{V}, I_E=-0.5\text{A}, f=30\text{MHz}$
Output Capacitance	$C_{OB}$	-	80	-	pF	$V_{CE}=10\text{V}, I_E=0, f=1\text{MHz}$
Turn-On Time	$T_{ON}$	-	-	0.3	$\mu\text{S}$	$I_C=3\text{A}, R_L=10\Omega, I_{B1}=-I_{B2}=0.15\text{A}, V_{CC}=30\text{V}$
Storage Time	$T_{STG}$	-	-	1.5		
Fall Time	$T_f$	-	0.1	0.3		

\*Measured under pulse condition. Pulse width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

**CHARACTERISTIC CURVES**



**CHARACTERISTIC CURVES**

