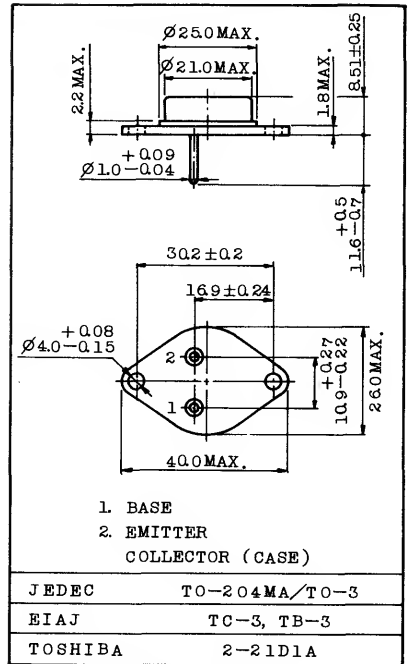


HIGH POWER SWITCHING, AMPLIFIER, DC-DC CONVERTER, INVERTER AND REGULATOR APPLICATIONS

**FEATURES:**

- . Specification for  $h_{FE}$  and  $V_{CE(sat)}$  Up to 30A:  
 $h_{FE}=5.0$  (Min.) @  $V_{CE}=-4.0V$ ,  $I_C=-30A$   
 $V_{CE(sat)}=-4.0V$  (Max.) @  $I_C=-30A$ ,  $I_B=-6A$
- . Low Saturation Voltage:  
 $V_{CE(sat)}=-0.75V$  (Max.) @  $I_C=-10A$ ,  $I_B=-1.0A$   
 $V_{BE(sat)}=-1.6V$  (Max.) @  $I_C=-10A$ ,  $I_B=-1.0A$
- . High Collector Power Dissipation Capability:  
 $P_C=200W$  (Max.)
- . Complementary to 2N5301

Unit in mm



Weight : 12.6g

**MAXIMUM RATINGS ( $T_a=25^{\circ}C$ )**

CHARACTERISTIC		SYMBOL	RATING	UNIT
※	Collector-Base Voltage	$V_{CBO}$	-40	V
※	Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	-40	V
※	Emitter-Base Voltage	$V_{EBO}$	-5.0	V
※	Collector Current	DC	-30	A
		Peak	-50	A
※	Base Current	DC	-7.5	A
		Peak	-15	A
※	Collector Power Dissipation	$T_a=25^{\circ}C$	$P_C$	5.0
		Derate above $25^{\circ}C$		28.6
		$T_c=25^{\circ}C$	$P_C$	200
		Derate above $25^{\circ}C$		1.15
※	Junction Temperature	$T_j$	200	$^{\circ}C$
※	Storage Temperature Range	$T_{stg}$	-65 ~ 200	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP	MAX.	UNIT
* Collector Cut-off Current	$I_{CBO}$	$V_{CB}=-40V, I_E=0$	-	-	-1.0	mA
* Collector Cut-off Current	$I_{CEX}$	$V_{CE}=-40V, V_{BE}=1.5V$	-	-	-5.0	mA
* Collector Cut-off Current	$I_{CEX}$	$V_{CE}=-30V, V_{BE}=1.5V, T_c=150^\circ C$	-	-	10	mA
* Collector Cut-off Current	$I_{CEO}$	$V_{CE}=-40V, I_B=0$	-	-	-5.0	mA
* Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=-5V, I_C=0$	-	-	-5.0	mA
* Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$ **	$I_C=-200mA, I_B=0$	-40	-	-	V
* DC Current Gain	$h_{FE}$	$V_{CE}=-2.0V, I_C=-1.0A$	40	-	-	
		$V_{CE}=-2.0V, I_C=-15A$	15	-	60	
		$V_{CE}=-4.0V, I_C=-30A$	5.0	-	-	
* Base-Emitter Voltage	$V_{BE}$	$V_{CE}=-2.0V, I_C=-15A$	-	-	-1.7	V
		$V_{CE}=-4.0V, I_C=-30A$	-	-	-3.0	V
* Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-10A, I_B=-1.0A$	-	-	-0.75	V
		$I_C=-15A, I_B=-1.5A$	-	-	-1.0	V
		$I_C=-20A, I_B=-2.0A$	-	-	-2.0	V
		$I_C=-30A, I_B=-6.0A$	-	-	-4.0	V
* Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-10A, I_B=-1.0A$	-	-	-1.6	V
		$I_C=-15A, I_B=-1.5A$	-	-	-1.85	V
		$I_C=-20A, I_B=-2.0A$	-	-	-2.5	V
* Transition Frequency	$f_T$	$V_{CE}=-10V, I_C=-1.0A, f=1.0MHz$	2.0	-	-	MHz
* Small-Signal Current Gain	$h_{fe}$	$V_{CE}=-10V, I_C=-1.0A, f=1.0kHz$	40	-	-	
* Switching Time	Rise Time	$t_r$	See Fig.1-1	-	-	0.4 $\mu s$
	Storage Time	$t_{stg}$	See Fig.1-2	-	-	1.5 $\mu s$
	Fall Time	$t_f$		-	-	0.6 $\mu s$

\* In Accordance with JEDEC Registration Data.

\*\* The sustaining voltage  $V_{CEO(SUS)}$  MUST NOT be measured on a curve tracer.

Fig. 1 SWITCHING TIME EQUIVALENT TEST CIRCUITS

Fig.1-1 TURN-ON TIME

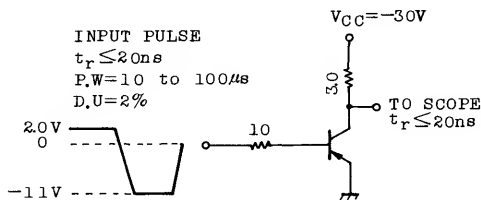


Fig.1-2 TURN-OFF TIME

