SILICON NPN TRIPLE DIFFUSED TYPE
(DARLINGTON POWER MODULE)

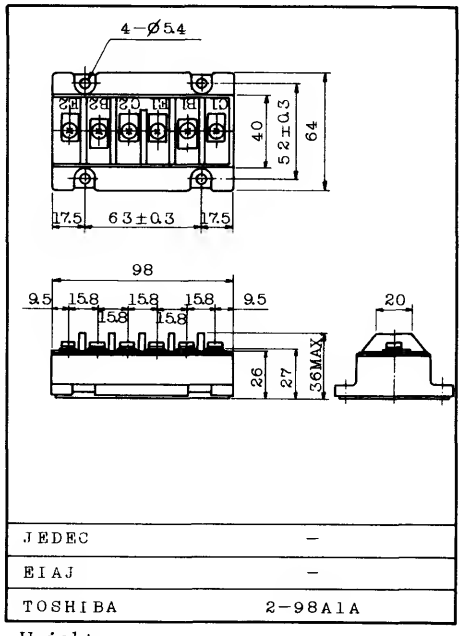
MG100H2DL1

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

FEATURES:

- The Collector is Isolated from Case.
- With Built-in Free Wheeling Diode
- High DC Current Gain : h_{FE}=80(Min.)(I_C=100A)
- Low Saturation Voltage : $V_{CE(sat)}$=2V(Max.)(I_C=100A)
- High Speed : t_f=4μs(Max.)(I_C=100A)

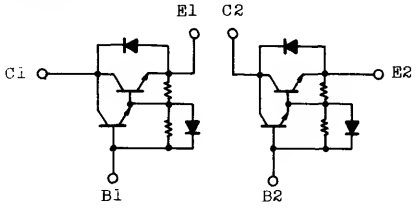
Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-98A1A

Weight :

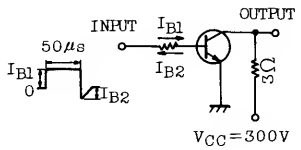
EQUIVALENT CIRCUIT

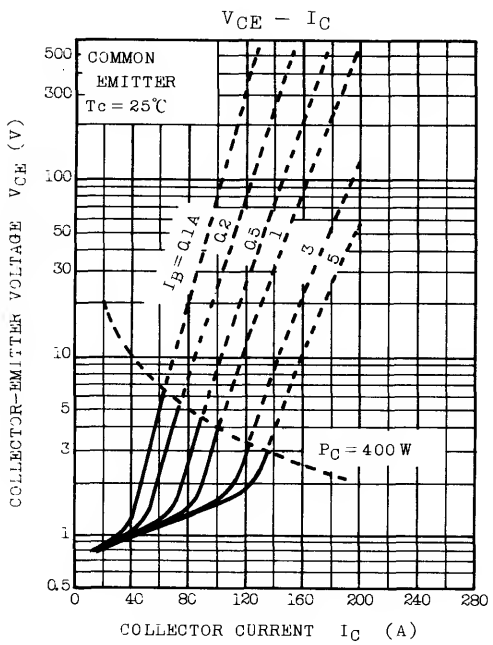


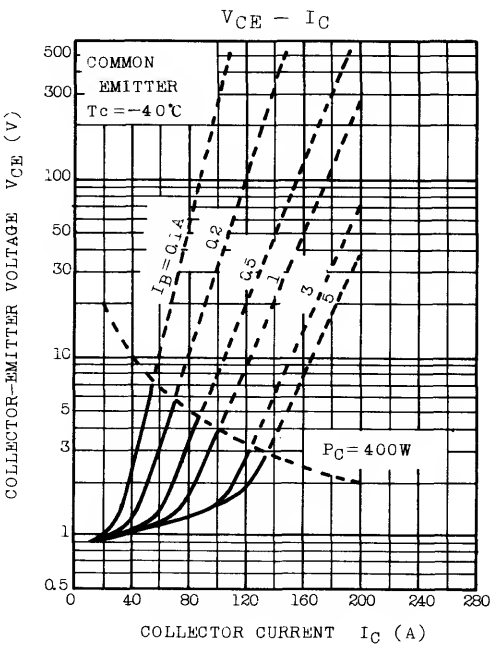
MAXIMUM RATINGS (T_a=25°C)

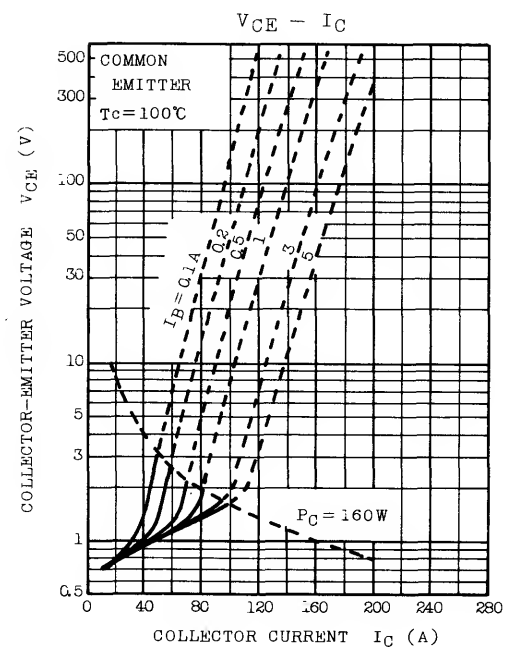
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		$V_{CEO(SUS)}$	550	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	100	A
	1ms	I_{CP}	200	
	DC	$-I_C$	100	
Base Current		I_B	5	A
Collector Power Dissipation (Tc=25°C)		P_C	400	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40~125	°C
Isolation Voltage		V_{Isol}	2000(AC 1 Minute)	V
Screw Torque			30	kg·cm

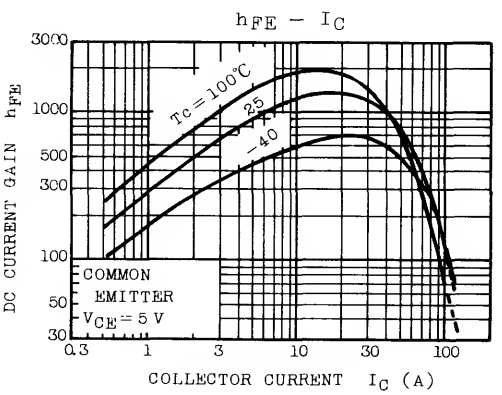
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=600V, I_E=0	-	-	2.0	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=6V, I_C=0	-	-	200	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	I_C=0.5A, L=40mH	550	-	-	V
DC Current Gain		h_{FE}	V_{CE}=5V, I_C=100A	80	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=100A, I_B=3A	-	-	2.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	2.7	V
Emitter-Collector Voltage		V_{ECO}	I_E=100A, I_B=0	-	-	1.5	V
Reverse Recovery Time		t_{rr}	-I_C=100A, V_{EB}=3V V_{CE}=300V	-	-	2.0	μs
Collector Output Capacitance		C_{ob}	V_{CB}=50V, I_E=0 f=1MHz	-	800	-	pF
Switching Time	Turn-on Time	t_{on}	 I_{B1}=-I_{B2}=3A DUTY CYCLE=0.5%	-	-	2.0	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f		-	-	4.0	
Thermal Resistance (Junction to Case)		$R_{th(j-c)}$	Transistor	-	-	0.31	°C/W
			Diode	-	-	1.3	

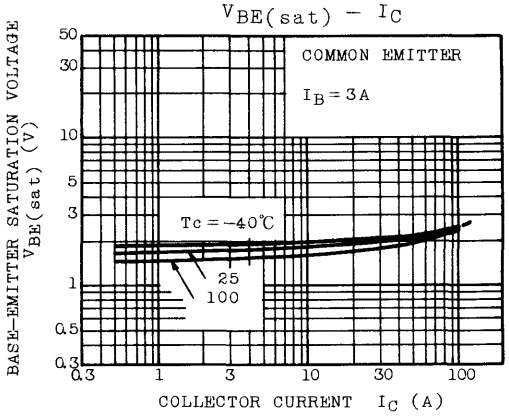

V_{CE} – I_C
COMMON EMITTER
Tc = 25℃
I_B = 0.1A
0.2
0.5
1
3
5
P_C = 400 W
COLLECTOR–EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)


V_{CE} – I_C
COMMON EMITTER
Tc = –40℃
I_B = 0.1A
0.2
0.5
1
3
5
P_C = 400W
COLLECTOR–EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)

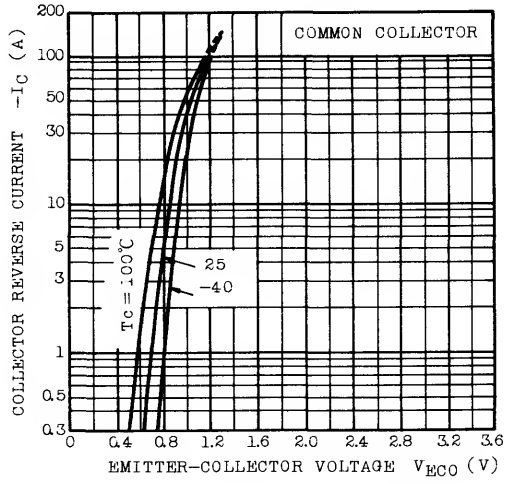

V_{CE} – I_C
COMMON EMITTER
Tc = 100℃
I_B = 0.1A
0.2
0.5
1
3
5
P_C = 160W
COLLECTOR–EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)


h_{FE} – I_C
Tc = 100℃
25
–40
COMMON EMITTER
V_{CE} = 5 V
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (A)

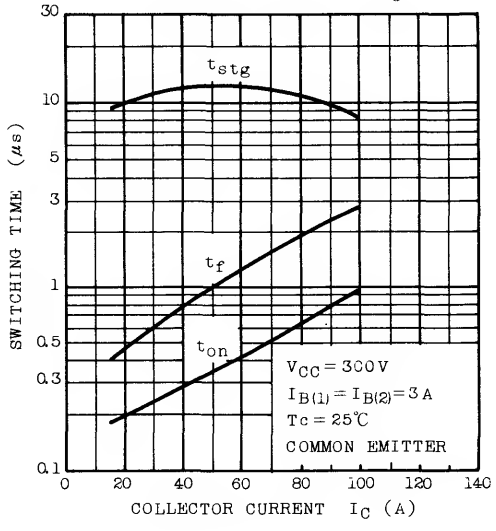
$V_{BE(sat)}$ – I_C



$-I_C$ – V_{ECO}



SWITCHING TIME – I_C



SAFE OPERATING AREA