SILICON NPN TRIPLE DIFFUSED TYPE
(DARLINGTON POWER MODULE)

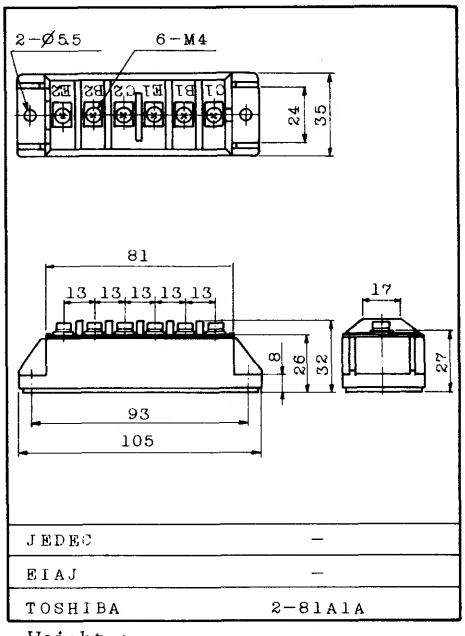
MG75H2DL1

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

FEATURES:

. The Collector is Isolated from Case.
. 2 Power Transistors and 2 Free Wheeling Diodes are Built-in to 1 Package.
. High DC Current Gain : h_{FE}=80(Min.)(I_C=75A)
. Low Saturation Voltage : $V_{CE(sat)}$=2V(Max.)(I_C=75A)
. High Speed : t_f=4μs(Max.)(I_C=75A)

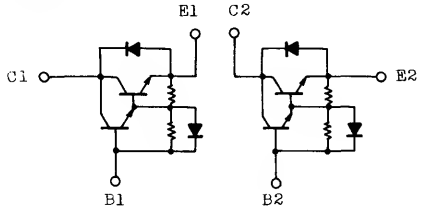
Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-81A1A

Weight :

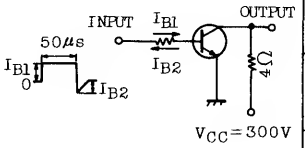
EQUIVALENT CIRCUIT

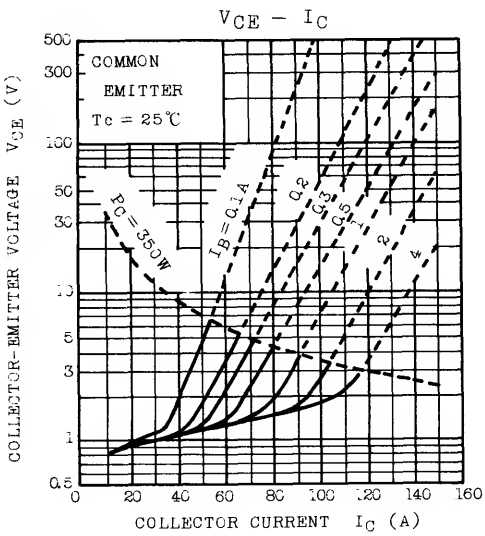


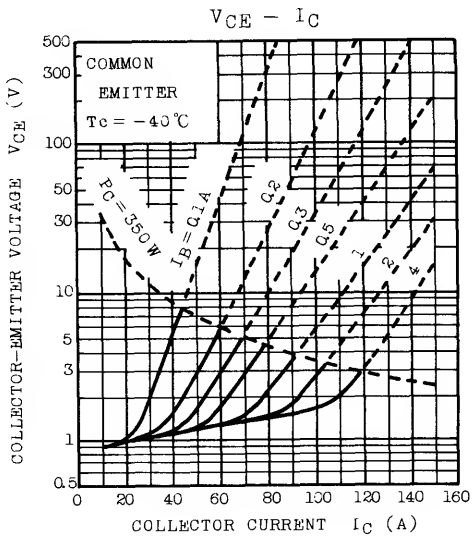
MAXIMUM RATINGS (Ta=25°C)

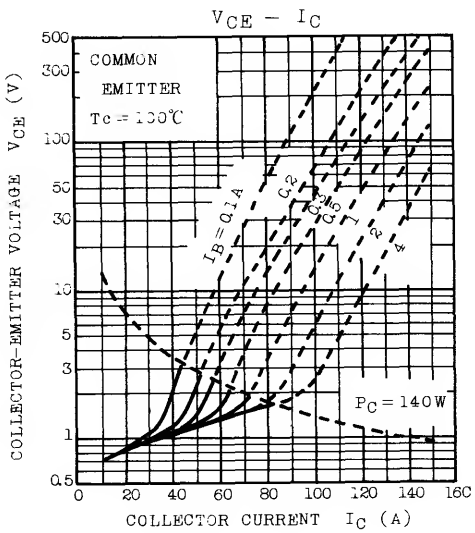
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		$V_{CEO(SUS)}$	500	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	75	A
	1ms	I_{CP}	150	
	DC	$-I_C$	75	
Base Current		I_B	4	A
Colletor Power Dissipation (Tc=25°C)		P_C	350	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40~125	°C
Isolation Voltage		V_{Isol}	2000(AC 1 Minute)	V
Screw Torque (Terminal/Mounting)			20/30	kg·cm

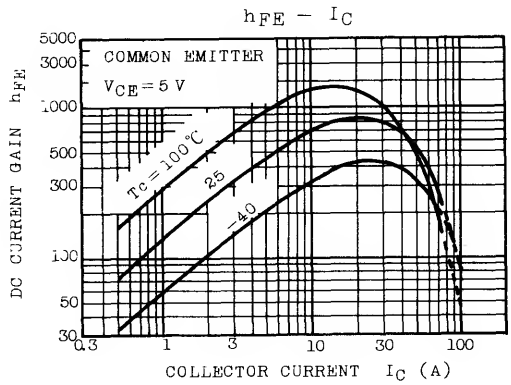
ELECTRICAL CHARACTERISTICS ($Ta=25^{o}C$)

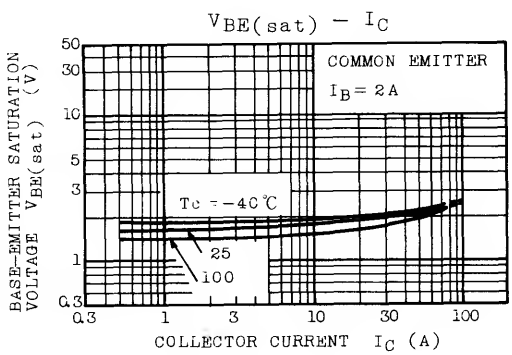
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=600V, I_E=0	-	-	1.0	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=6V, I_C=0	-	-	200	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	I_C=0.5A, L=40mH	500	-	-	V
DC Current Gain		h_{FE}	V_{CE}=5V, I_C=75A	80	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=75A, I_B=2A	-	-	2.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	2.5	V
Emitter-Collector Voltage		V_{ECO}	I_E=75A, I_B=0	-	-	1.5	V
Reverse Recovery Time		t_{rr}	$-I_C$=75A, V_{EB}=3V V_{CE}=300V	-	-	2.0	μs
Collector Output Capacitance		C_{ob}	V_{CB}=50V, I_E=0 f=1MHz	-	670	-	pF
Switching Time	Turn-on Time	t_{on}		-	-	2.0	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f	$I_{B1}=-I_{B2}=2A$ DUTY CYCLE=0.5%	-	-	4.0	
Thermal Resistance (Junction to Case)		$R_{th(j-c)}$	Transistor	-	-	0.36	$^{o}C/W$
			Diode	-	-	1.3	


V_{CE} – I_C
COMMON EMITTER
Tc = 25℃
P_C = 350W
I_B = 0.1A
0.2
0.3
0.5
1
2
4
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)

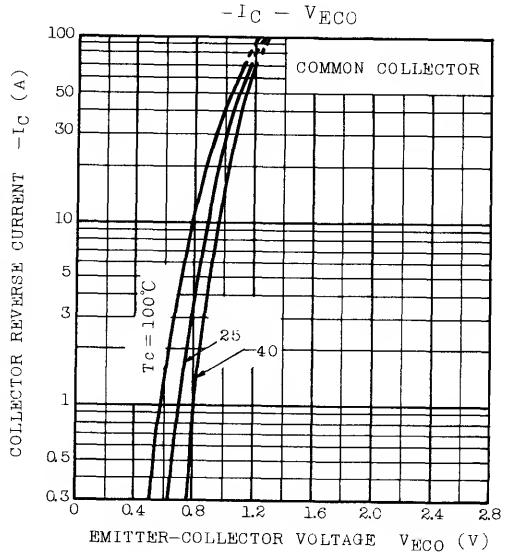

V_{CE} – I_C
COMMON EMITTER
Tc = −40℃
P_C = 350W
I_B = 0.1A
0.2
0.3
0.5
1
2
4
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)


V_{CE} – I_C
COMMON EMITTER
Tc = 100℃
P_C = 140W
I_B = 0.1A
0.2
0.3
0.5
1
2
4
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)

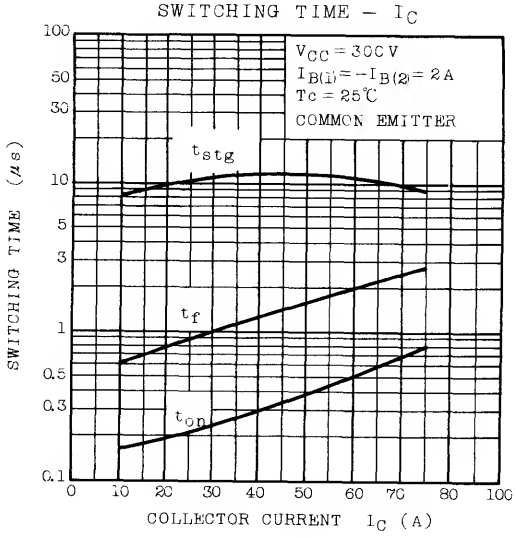

h_{FE} – I_C
COMMON EMITTER
V_{CE} = 5 V
Tc = 100℃
25
−40
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (A)


$V_{BE(sat)}$ – I_C
COMMON EMITTER
I_B = 2A
Tc = −40℃
25
100
BASE-EMITTER SATURATION VOLTAGE $V_{BE(sat)}$ (V)
COLLECTOR CURRENT I_C (A)

$-I_C - V_{ECO}$



SWITCHING TIME − I_C



SAFE OPERATING AREA