

9097250 TOSHIBA (DISCRETE/OPTO)

90D 16213 DT-33-35



**SEMICONDUCTOR**  
TECHNICAL DATA

TOSHIBA GTR MODULE

MG20G4GL1 MG20G6EL1

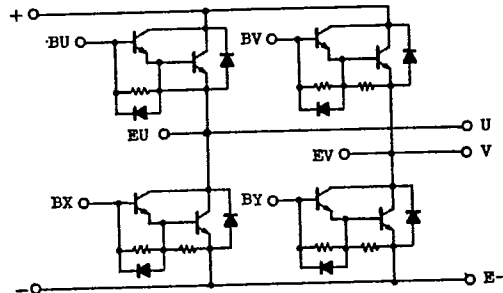
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.  
MOTOR CONTROL APPLICATIONS.

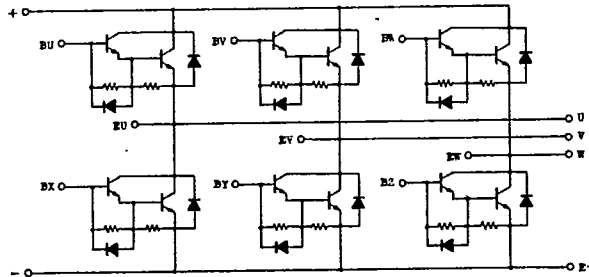
FEATURES :

- The Collector is Isolated from Case
- 4 or 6 Darlingtons Transistors including Free Wheeling Diodes are Built-in to 1 package
- High DC Current Gain  
:  $h_{FE}=100(\text{Min.}) (I_C=20A)$
- Low Saturation Voltage  
:  $V_{CE(\text{sat})}=2V(\text{Max.}) (I_C=20A)$

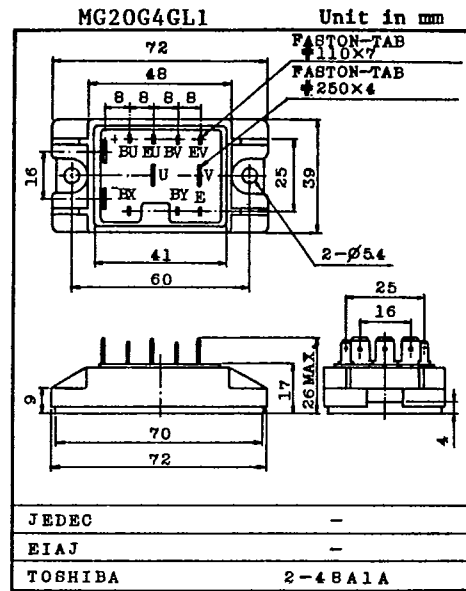
EQUIVALENT CIRCUIT



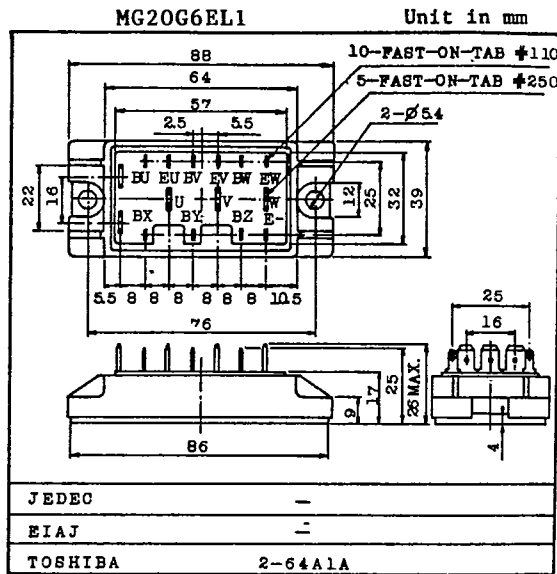
MG20G4GL1



MG20G6EL1



Weight : 140g



Weight : 180g

TOSHIBA CORPORATION

9097250 TOSHIBA (DISCRETE/OPTO)

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## SEMICONDUCTOR

## TECHNICAL DATA

M G 2 0 G 4 G L 1

M G 2 0 G 6 E L 1

## MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V <sub>CB0</sub>	600	V
Collector-Emitter Sustaining Voltage		V <sub>CEX(SUS)</sub>	600	V
Collector-Emitter Sustaining Voltage		V <sub>CEO(SUS)</sub>	450	V
Emitter-Base Voltage		V <sub>EB0</sub>	6	V
Collector Current	DC	I <sub>C</sub>	20	A
	1ms	I <sub>CP</sub>	40	A
Forward Current	DC	I <sub>F</sub>	20	A
	1ms	I <sub>FM</sub>	40	A
Base Current		I <sub>B</sub>	2	A
Collector Power Dissipation (Tc=25°C)		P <sub>C</sub>	125	W
Junction Temperature		T <sub>j</sub>	150	°C
Storage Temperature Range		T <sub>stg</sub>	-40 ~ 125	°C
Isolation Voltage		V <sub>Isol</sub>	2500 (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 <sub>CBO</sub>	V <sub>CB</sub> =600V, I <sub>E</sub> =0	-	-	1.0	mA
Emitter Cut-off Current		I <sub>EBO</sub>	V <sub>EB</sub> =6V, I <sub>C</sub> =0	-	-	100	mA
Collector-Emitter Sustaining Voltage		V <sub>CEO(SUS)</sub>	I <sub>C</sub> =0.5A, L=40mH	450	-	-	V
DC Current Gain		h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =20A	100	-	-	
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> =20A, I <sub>B</sub> =0.5A	-	-	2.0	V
Base-Emitter Saturation Voltage		V <sub>BE(sat)</sub>		-	-	2.5	V
Switching Time	Turn-on Time	t <sub>on</sub>		-	-	1.0	µs
	Storage Time	t <sub>stg</sub>		-	-	12	
	Fall Time	t <sub>f</sub>		-	-	2.0	
Forward Voltage		V <sub>F</sub>	I <sub>F</sub> =20A, I <sub>B</sub> =0	-	-	1.6	V
Reverse Recovery Time		t <sub>rr</sub>	I <sub>F</sub> =20A, V <sub>BE</sub> =-2V di/dt=60A/µs	-	-	0.7	µs
Thermal Resistance		R <sub>th(j-c)</sub>		-	-	1.0	°C/W

TOSHIBA CORPORATION

GT1A2A