

TOSHIBA SOLID STATE GTR DRIVER MODULE

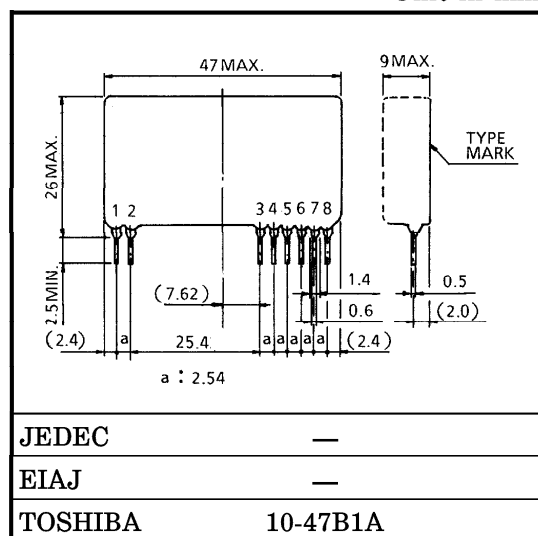
TF1202

TOSHIBA TF1202 is the GTR driver designed for use with TOSHIBA Giant Transistor Module and it includes the optical isolator and GTR driver circuit.

Using this driver, you can design high reliability and compact system.

- 2000V_{RMS} Optical Isolation
- Logic Compatible Input
- High Speed Switching Response
: $t_{pLH}=2\mu s$, $t_{pHL}=3\mu s$ (Typ.)
- Small Size and Light Weight

Unit in mm

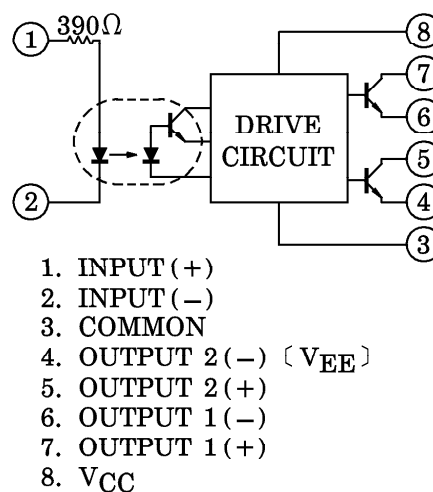


Weight : 12g

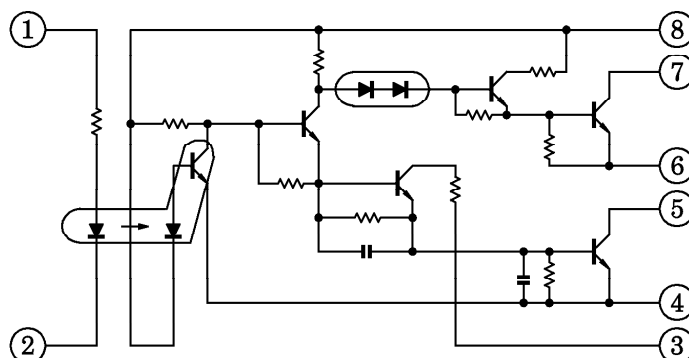
MAXIMUM RATINGS (T_a = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	8.5	V
	V _{EE}	−5	V
Input Voltage	V _{IN}	5.5	V
Reverse Input Voltage	V _{RIN}	5	V
High Level Output Current	I _{OH}	−2	A
Low Level Peak Output Current	I _{OLP}	6 (10μs)	A
Isolation (Input-Output)	BV _S / AC	2000 (1min)	V
Operating Frequency	f	5	kHz
Operating Temperature	T _{opr}	−20~70	°C
Storage Temperature	T _{stg}	−20~100	°C

BLOCK DIAGRAM



CIRCUIT DIAGRAM



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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

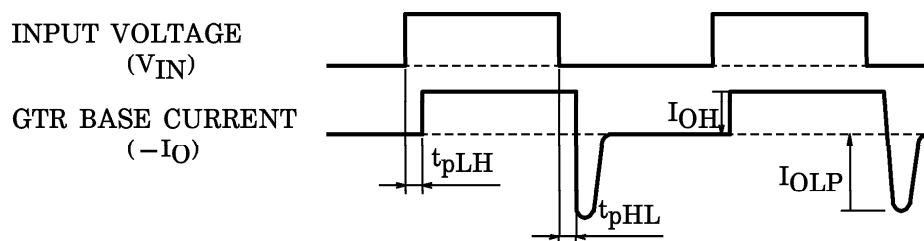
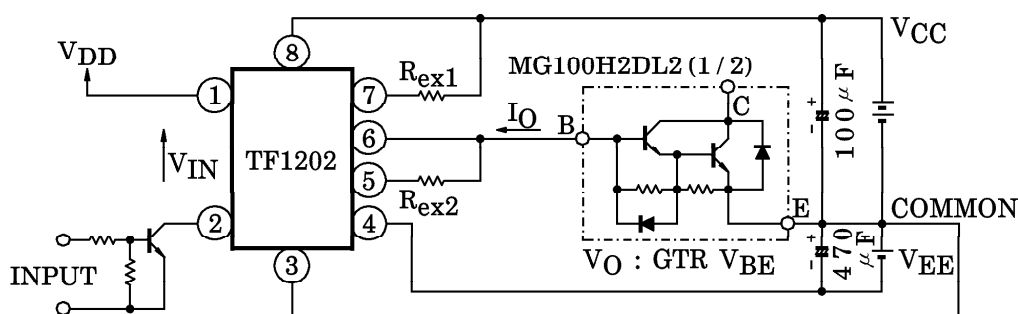
RECOMMENDED OPERATING CONDITIONS (Ta = -10~50°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}	—	6	7	8	V
	V _{EE}	—	−3.5	−4	−4.5	V
High Level Input Voltage	V _{IH}	—	—	5	—	V
External Resistor	R _{ex1}	—	—	3.3	—	Ω
	R _{ex2}	—	0.22	0.5	—	Ω
Operating Frequency	f	—	—	2	—	kHz

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V_{CC} = 7\text{V}$, $V_{EE} = -4\text{V}$, $R_{ex1} = 2.5\Omega$, $R_{ex2} = 0.22\Omega$)

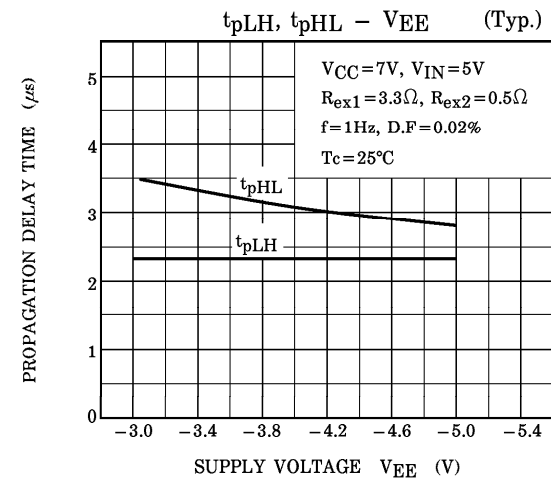
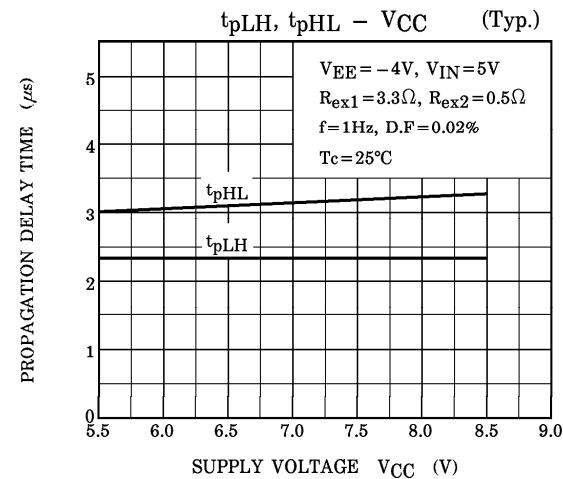
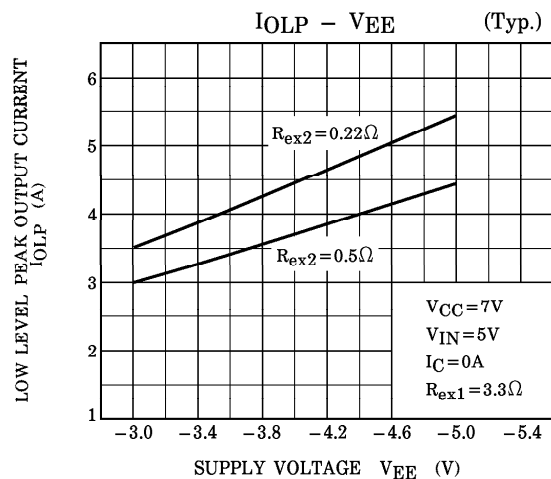
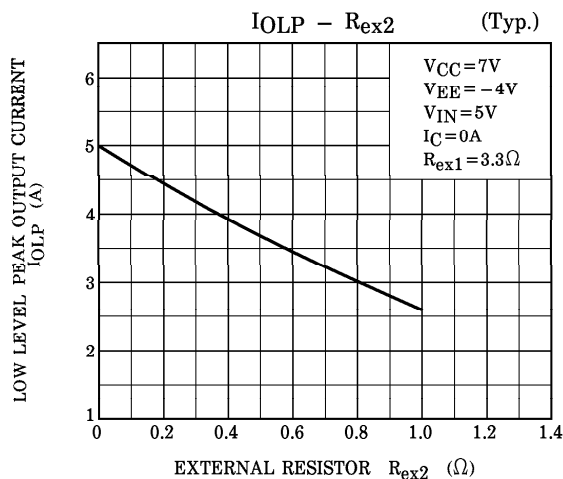
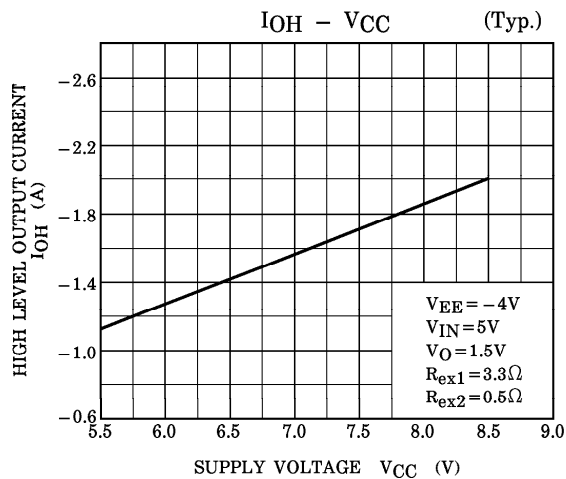
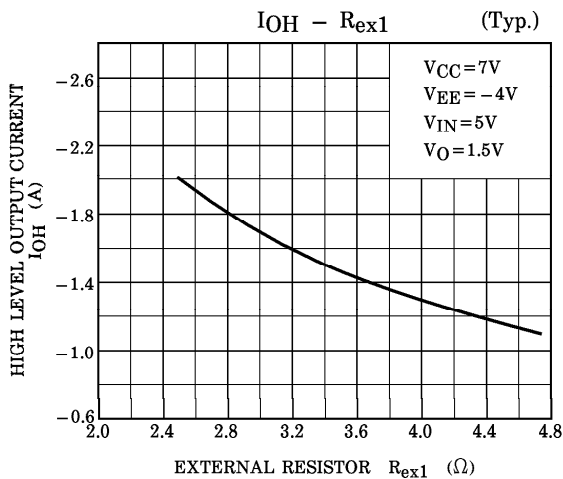
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Current	I_{IN}	$V_{IN}=5V$	7	8.5	10	mA
High Level Input Voltage	V_{IH}	$I_{OH}=-2A$	—	2.5	4.5	V
Low Level Input Voltage	V_{IL}	$I_{OLP}=5A$	1.0	2	—	V
High Level Output Current	I_{OH}	$V_{IN}=5V, V_O=1.5V$	—	−2	—	A
Low Level Peak Output Current	I_{OLP}	$V_{IN}=0V$	—	4.6	—	A
(Low→High) Propagation Delay Time	t_{pLH}	$V_{IN}=0\rightarrow5V$	—	2	7	μs
(High→Low) Propagation Delay Time	t_{pHL}	$V_{IN}=5\rightarrow0V$	—	3	7	μs
Power Dissipation	P_D	f=2kHz, D.f=50%	—	0.7	—	W

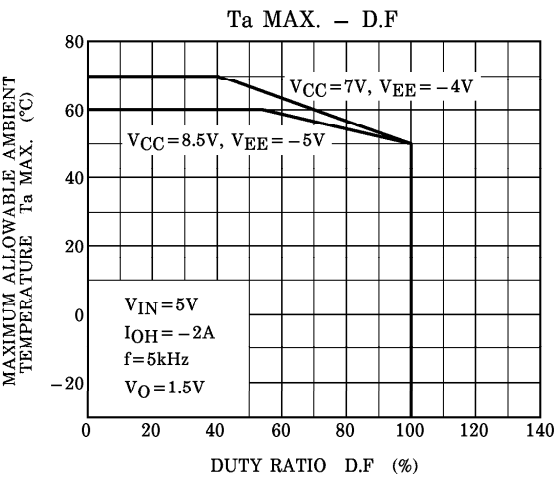
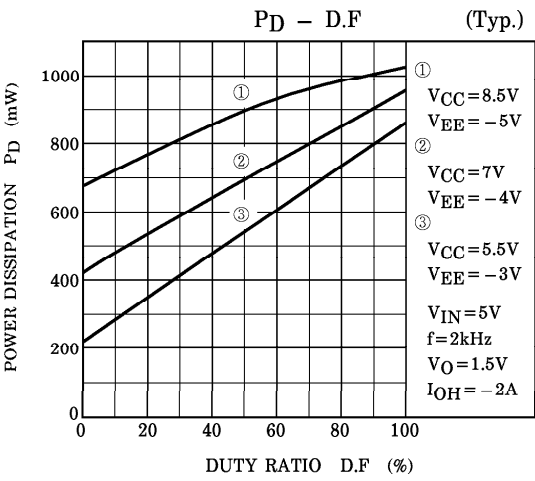
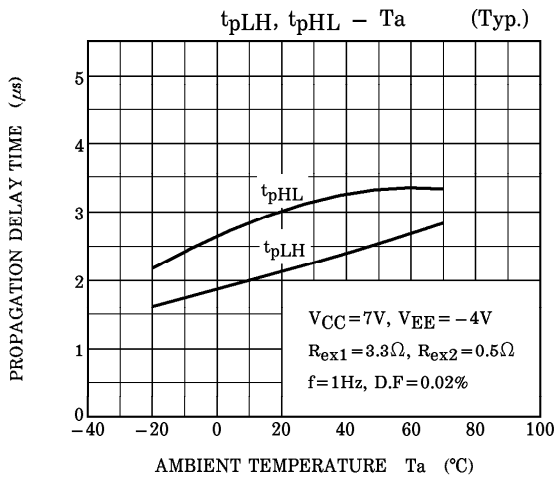
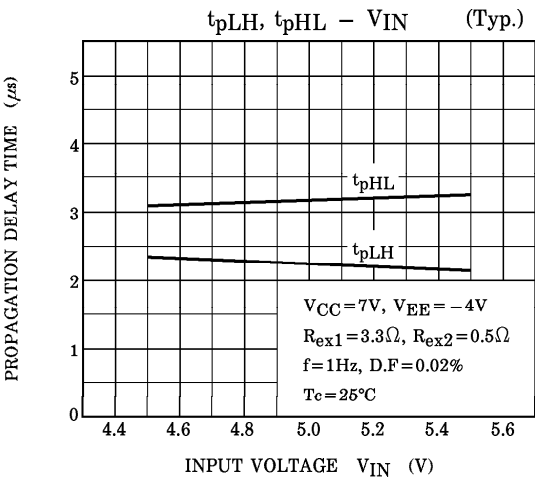
TEST CIRCUIT



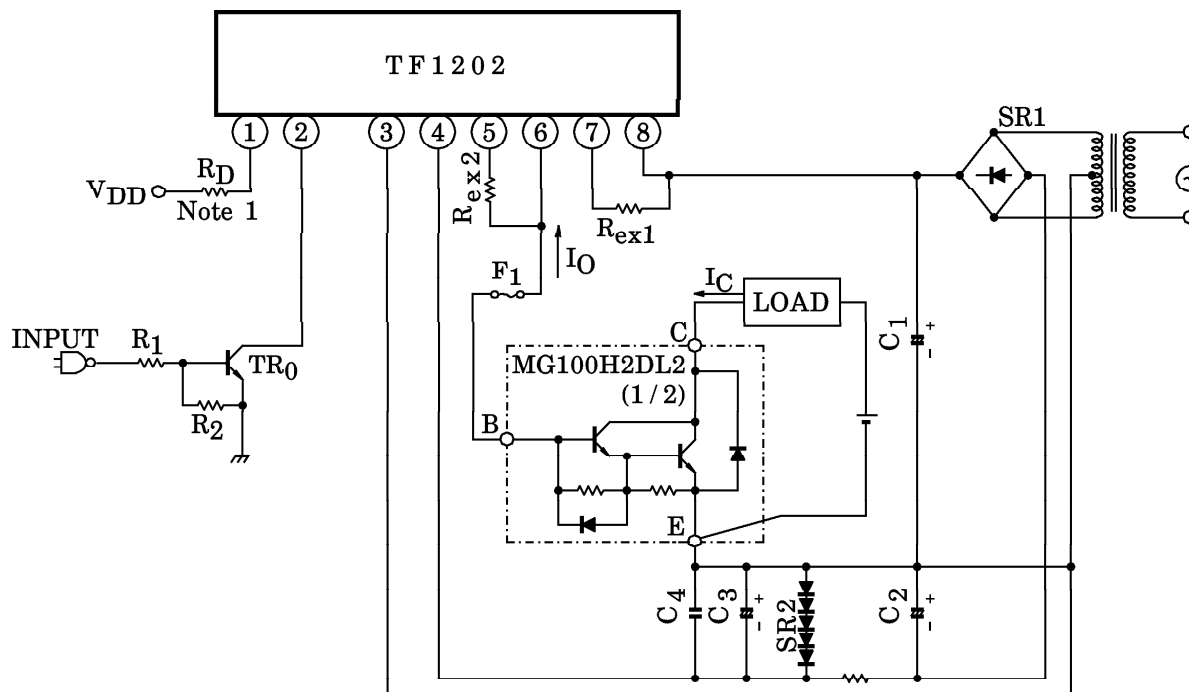
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MG100H2DL2 BASE DRIVE CIRCUIT



ITEM	SYMBOL	CONSTANTS	UNIT
External Resistor	R_D	Note 1	Ω
—	R_1	10	$k\Omega$
—	R_2	10	$k\Omega$
Transistor	TR_0	2SC1815	—
Capacitor	C_1	10000	μF
Capacitor	C_2	3300	μF
Bridge Rectifier	SR1	4G4B41	—
Rectifier	SR2	1N4001 $\times$ 5	—
Capacitor	C_3	100	μF
Capacitor	C_4	0.1	μF

I_{IN} : Input current (8.5 [mA])