

DESCRIPTION

The M63832GP/KP 7-channel sinkdriver, consists of 7 PNP and 14 NPN transistors connected to form seven high current gain driver pairs.

FEATURES

- High breakdown voltage ($BV_{CEO} \geq 50V$)
- High-current driving ($I_{C(max)} = 500mA$)
- 3V micro computer compatible input
- "L" active level input
- With input diode
- Wide operating temperature range ($T_a = -40$ to $+85^\circ C$)

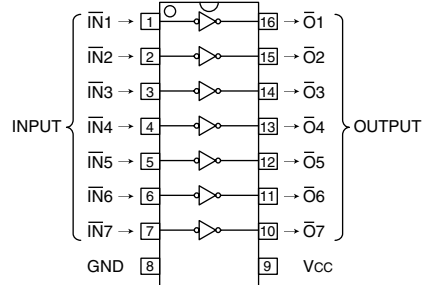
APPLICATION

Output for 3 voltage microcomputer series and interface with high voltage system. Relay and small printer driver, LED, or incandescent display digit driver.

FUNCTION

The M63832GP/KP is transistor-array of high active level seven units type which can do direct drive of 3 voltage micro-computer series. A resistor of $3.5k\Omega$ is connected between the input and the base of PNP transistors. The input diode is intended to prevent the flow of current from the input to the V_{CC} . Without this diode, the current flows from "H" input to the V_{CC} and the "L" input circuit is activated, in such a case where one of the inputs of the 7 circuit is "H" and the other are "L" to save power consumption. The diode is inserted to prevent such mis-operation. The outputs are capable of driving 500mA and are rated for operation with output voltage up to 50V.

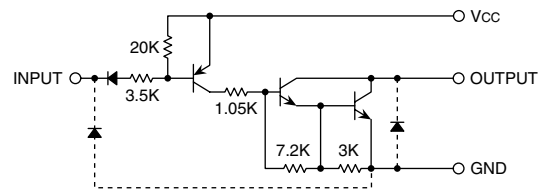
PIN CONFIGURATION



16P2S-A(GP)

Package type 16P2Z-A(KP)

CIRCUIT DIAGRAM



The seven circuits share the V_{CC} and GND

The diode, indicated with the dotted line, is parasitic, and cannot be used.

Unit : Ω

ABSOLUTE MAXIMUM RATINGS (Unless otherwise noted, $T_a = -40 \sim +85^\circ C$)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		7	V
V_{CEO}	Collector-emitter voltage	Output, H	-0.5 ~ +50	V
I_C	Collector current	Current per circuit output, L	500	mA
V_i	Input voltage		-0.5 ~ V_{CC}	V
P_d	Power dissipation	$T_a = 25^\circ C$, when mounted on board	0.80(FP)/0.78(KP)	W
T_{opr}	Operating temperature		-40 ~ +85	$^\circ C$
T_{stg}	Storage temperature		-55 ~ +125	$^\circ C$

PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

7-UNIT 500mA DARLINGTON TRANSISTOR-ARRAY

RECOMMENDED OPERATING CONDITIONS (Unless otherwise noted, $T_a = -40 \sim +85^\circ\text{C}$)

Symbol	Parameter	Limits			Unit	
		min	typ	max		
VCC	Supply voltage	2.7	3.0	3.6	V	
Ic	Collector current (Current per 1 circuit when 7 circuits are coming on simultaneously)	Duty Cycle GP/KP : no more than 2%	0	—	400	mA
		Duty Cycle GP/KP : no more than 10%	0	—	200	
V _{IH}	"H" input voltage	V _{CC} -0.5	—	V _{CC}	V	
V _{IL}	"L" input voltage	0	—	V _{CC} -2.2	V	

ELECTRICAL CHARACTERISTICS (Unless otherwise noted, $T_a = -40 \sim +85^\circ\text{C}$)

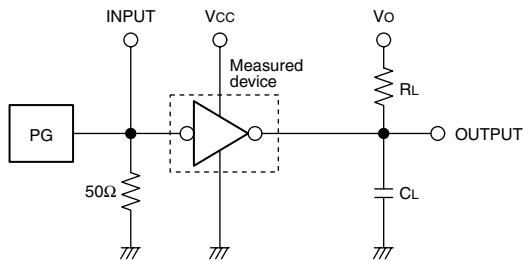
Symbol	Parameter	Test conditions	Limits			Unit
			min	typ*	max	
V (BR) CEO	Collector-emitter breakdown voltage	I _{CEO} = 100μA	50	—	—	V
V _{CE(sat)}	Collector-emitter saturation voltage	V _{CC} = 2.7V, V _I = 0.5V, I _C = 400mA	—	1.15	2.4	V
		V _{CC} = 2.7V, V _I = 0.5V, I _C = 200mA	—	0.93	1.6	
I _I	Input current	V _I = V _{CC} -2.2V	—	-220	-600	μA
I _{CC}	Supply current (AN only Input)	V _{CC} = 3.6V, V _I = 0.5V	—	2.6	4.0	mA
hFE	DC amplification factor	V _{CC} = 2.7V, V _{CE} = 2V, I _C = 0.35A, T _a = 25°C	2000	10000	—	—

* : Typical values are at T_a = 25°C

SWITCHING CHARACTERISTICS (Unless otherwise noted, T_a = 25°C)

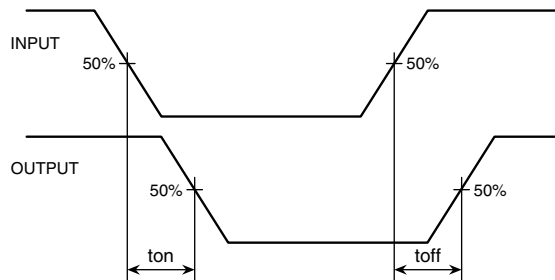
Symbol	Parameter	Test conditions	Limits			Unit
			min	typ	max	
t _{on}	Turn-on time	C _L = 15pF (note 1)	—	120	—	ns
t _{off}	Turn-off time		—	4500	—	ns

NOTE 1 TEST CIRCUIT



- (1) Pulse generator (PG) characteristics : PRR=1kHz, t_w = 10μs, t_r = 6ns, t_f = 6ns, Z_o = 50Ω, V_I = 0.5 ~ 2.7V
- (2) Input-output conditions : R_L = 30Ω, V_o = 10V, V_{CC} = 2.7V
- (3) Electrostatic capacity C_L includes floating capacitance at connections and input capacitance at probes

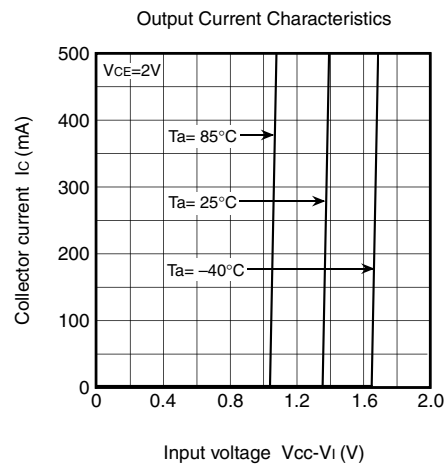
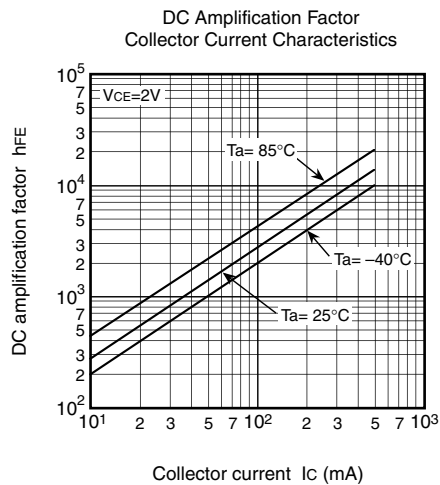
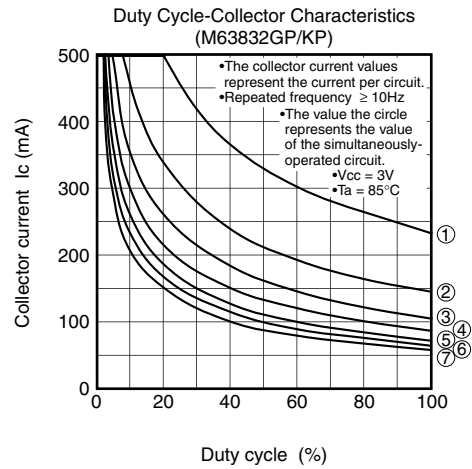
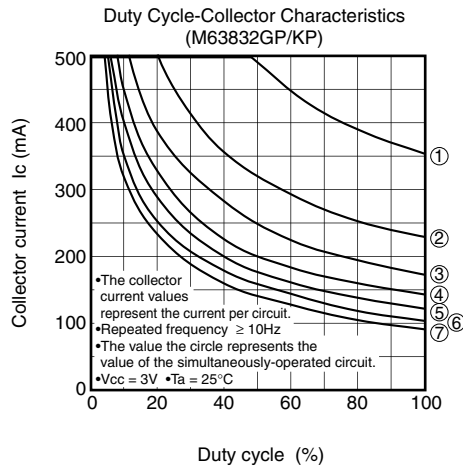
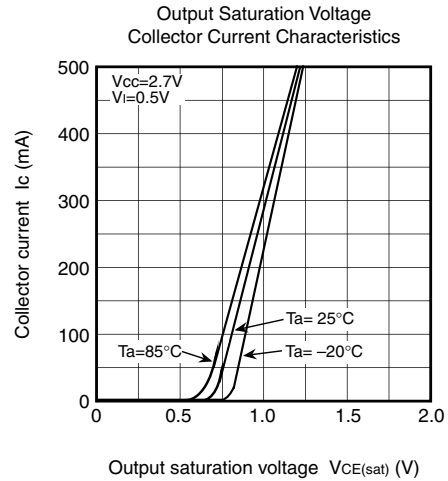
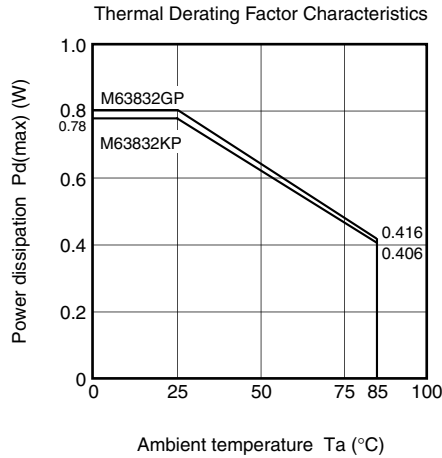
TIMING DIAGRAM



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TYPICAL CHARACTERISTICS



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