

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

MITSUBISHI SEMICONDUCTOR <TRANSISTOR ARRAY>

M63834FP/KP

8-UNIT 500mA DARLINGTON TRANSISTOR-ARRAY

DESCRIPTION

The M63834FP/KP 8-channel sinkdriver, consists of 8 PNP and 16 NPN transistors connected to from eight 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 $+85^{\circ}C$)

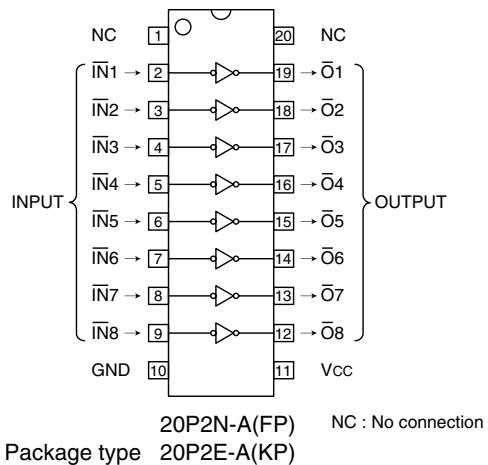
APPLICATION

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

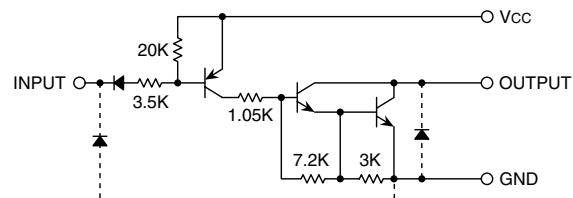
FUNCTION

The M63834GP/KP is transistor-array of high active level eight 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 8 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



CIRCUIT DIAGRAM



The eight 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, $T_a = -40$ ~ $+85^{\circ}C$)

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	1.10(FP)/0.68(KP)	W
T_{OPR}	Operating temperature		-40 ~ +85	°C
T_{STG}	Storage temperature		-55 ~ +125	°C

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

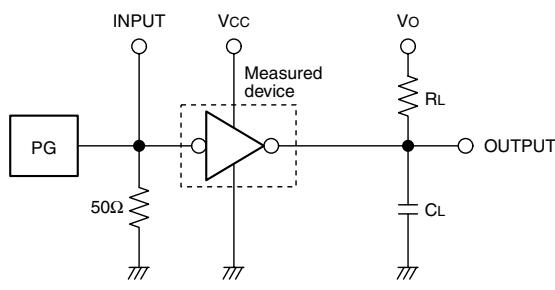
Symbol	Parameter	Limits			Unit
		min	typ	max	
V _{CC}	Supply voltage	2.7	3.0	3.6	V
I _C	Collector current (Current per 1 circuit when 8 circuits are coming on simultaneously)	Duty Cycle FP : no more than 4% KP : no more than 2%	0	—	400
		Duty Cycle FP : no more than 15% KP : no more than 6%	0	—	200
V _{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, $T_a = -40 \sim +85^\circ\text{C}$)

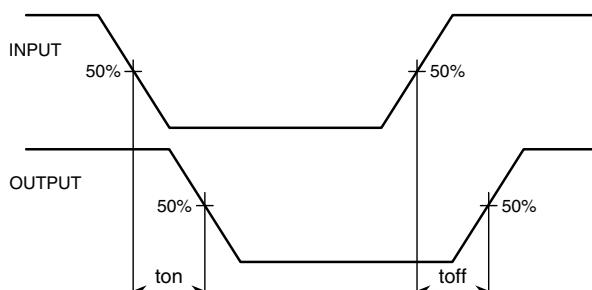
Symbol	Parameter	Test conditions	Limits			Unit
			min	typ*	max	
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _{CEO} = 100μA	50	—	—	V
V _{CESAT}	Collector-emitter saturation voltage	V _{CC} = 2.7V, V _I = 0.5V, I _C = 400mA	—	1.15	2.4	V
		V _{CC} = 2.7V, V _I = 0.5V, I _C = 200mA	—	0.93	1.6	
I _I	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
h _{FE}	DC amplification factor	V _{CC} = 2.7V, V _{CES} = 2V, I _C = 0.35A, T _a = 25°C	2000	10000	—	—

* : Typical values are at $T_a = 25^\circ\text{C}$ **SWITCHING CHARACTERISTICS** (Unless otherwise noted, $T_a = 25^\circ\text{C}$)

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

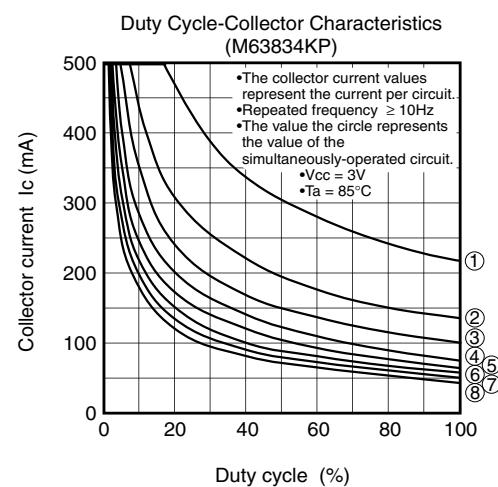
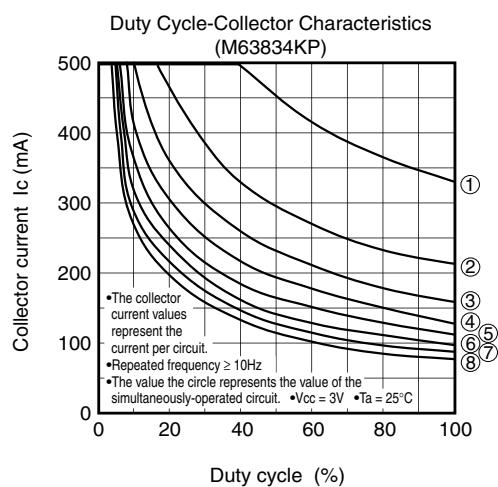
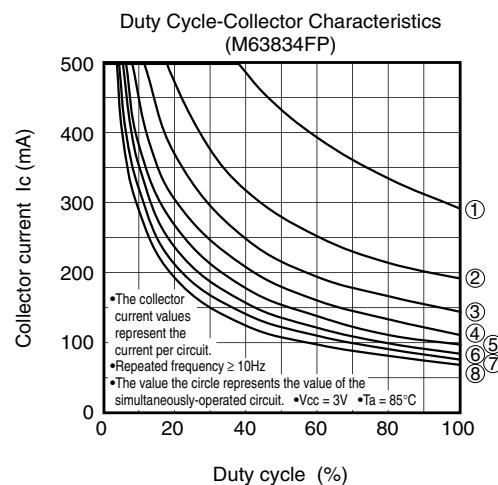
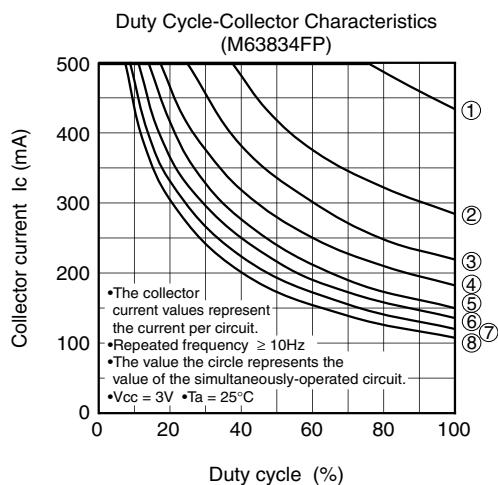
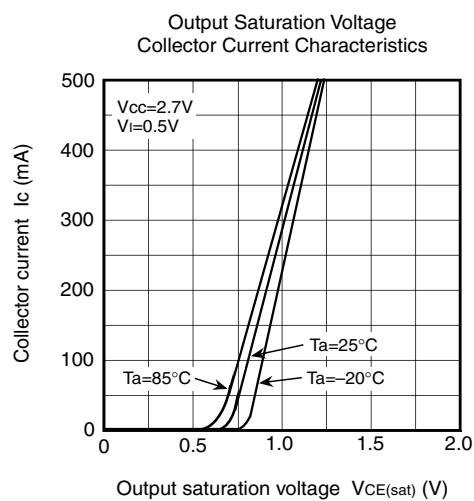
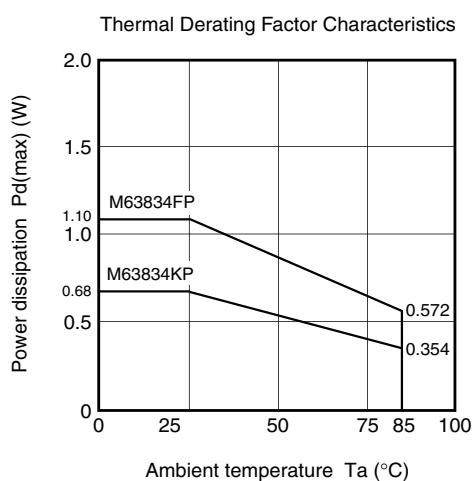
NOTE 1 TEST CIRCUIT

- (1) Pulse generator (PG) characteristics : PRR=1kHz,
tw = 10μs, tr = 6ns, tf = 6ns, Zo = 50Ω
Vi = 0.5 ~ 2.7V
- (2) Input-output conditions : RL = 30Ω, Vo = 10V, Vcc = 2.7V
- (3) Electrostatic capacity CL includes floating capacitance
at connections and input capacitance at probes

TIMING DIAGRAM

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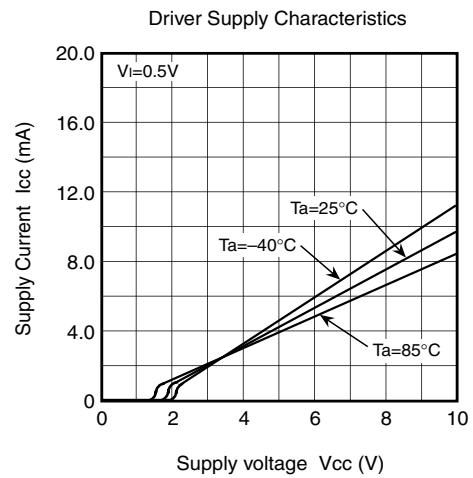
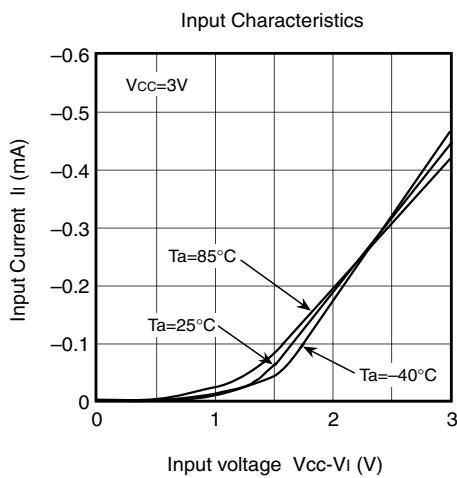
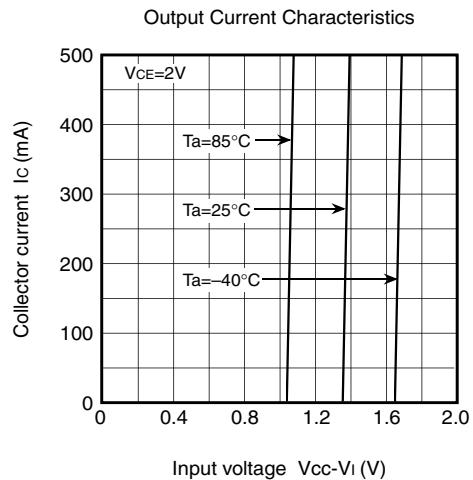
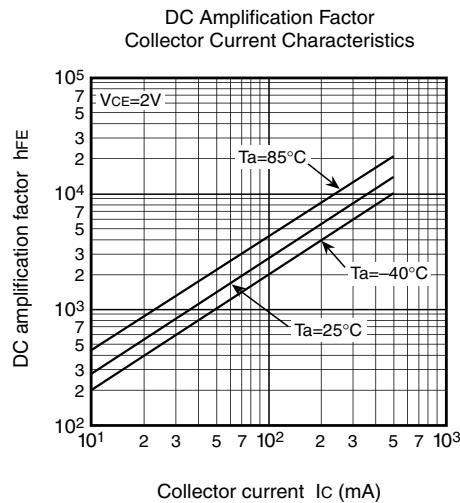
TYPICAL CHARACTERISTICS

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