

Low Saturation Voltage

PNP Silicon Driver Transistors

Part of the GreenLine™ Portfolio of devices with energy-conserving traits.

This PNP Silicon Epitaxial Planar Transistor is designed to conserve energy in general purpose driver applications. This device is housed in the SOT-23 and SC-59 packages which are designed for low power surface mount applications.

- Low $V_{CE(sat)}$, < 0.1 V at 50 mA

Applications

- LCD Backlight Driver
- Annunciator Driver
- General Output Device Driver

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Rating	Symbol	Value	Unit
Collector-Base Voltage	$V_{(BR)CBO}$	45	Vdc
Collector-Emitter Voltage	$V_{(BR)CEO}$	15	Vdc
Emitter-Base Voltage	$V_{(BR)EBO}$	5.0	Vdc
Collector Current — Continuous	I_C	100	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Power Dissipation $T_A = 25^\circ\text{C}$	P_D (1)	250	mW
Derate above 25°C		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 — +150	$^\circ\text{C}$

DEVICE MARKING

MMBT1010LT1 = GLP; MSD1010T1 = GLP

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Condition	Min	Max	Unit
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	15	—	Vdc
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\ \mu\text{A}, I_C = 0$	5.0	—	Vdc
Collector-Base Cutoff Current	I_{CBO}	$V_{CB} = 20\text{ V}, I_E = 0$	—	0.1	μA
Collector-Emitter Cutoff Current	I_{CEO}	$V_{CE} = 10\text{ V}, I_B = 0$	—	100	μA
DC Current Gain	h_{FE1} (2)	$V_{CE} = 5\text{ V}, I_C = 100\text{ mA}$	300	600	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$ (2)	$I_C = 10\text{ mA}, I_B = 1.0\text{ mA}$	—	0.1	Vdc
		$I_C = 50\text{ mA}, I_B = 5.0\text{ mA}$	—	0.1	
		$I_C = 100\text{ mA}, I_B = 10\text{ mA}$	—	0.19	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$ (2)	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$	—	1.1	Vdc

(1) Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.

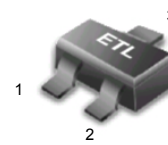
(2) Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, D.C. $\leq 2\%$.

MMBT1010LT1
MSD1010T1

**PNP GENERAL
PURPOSE DRIVER
TRANSISTORS
SURFACE MOUNT**



CASE 318-08, STYLE 6
SOT-23



CASE 318D-04, STYLE 1
SC-59

