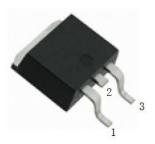
# MJD127R-CH

# **PNP Silicon Power Darlington Transistor**

#### **Features**

- AEC-Q101 Qualified
- Halogen and Antimony Free(HAF), RoHS compliant



1.Base 2.Collector 3.Emitter TO-252 Plastic Package

### Absolute Maximum Ratings (T<sub>a</sub> = 25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Collector Base Voltage		-V <sub>CBO</sub>	100	V
Collector Emitter Voltage	-V <sub>CEO</sub>	100	V	
Emitter Base Voltage	-V <sub>EBO</sub>	5	V	
Collector Current	-Ic	8	А	
Peak Collector Current, Pulsed	-I <sub>CM</sub>	16	Α	
Base Current		-I <sub>B</sub>	120	mA
Total Dissipation	$T_C = 25^{\circ}C$	P <sub>tot</sub>	20	W
Total Dissipation 1)	T <sub>a</sub> = 25°C	P <sub>tot</sub>	1.75	W
Operating Junction and Storage Temperatur	$T_{j}, T_{stg}$	- 65 to + 150	°C	

#### **Thermal Characteristics**

Parameter	Symbol	Max.	Unit		
Thermal Resistance from Junction to Case	Rejc	6.25	°C/W		
Thermal Resistance from Junction to Ambient 1)	R <sub>θJA</sub>	71.4	°C/W		

<sup>&</sup>lt;sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



# MJD127R-CH

### Characteristics at $T_C = 25$ °C unless otherwise specified

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at -V <sub>CE</sub> = 4 V, -I <sub>C</sub> = 4 A at -V <sub>CE</sub> = 4 V, -I <sub>C</sub> = 8 A	h <sub>FE</sub>	1000 100	12000 -	
Collector Base Breakdown Voltage at -I <sub>C</sub> = 100 µA	-V <sub>(BR)CBO</sub>	100	-	V
Collector Emitter Breakdown Voltage at -I <sub>C</sub> = 30 mA	-V <sub>(BR)CEO</sub>	100	-	V
Emitter Base Breakdown Voltage at $-I_E = 2.5$ mA	-V <sub>(BR)EBO</sub>	5	-	V
Collector Emitter Cutoff Current at -V <sub>CE</sub> = 50 V	-Iceo	-	10	μΑ
Collector Base Cutoff Current at -V <sub>CB</sub> = 100 V	-I <sub>CBO</sub>	-	10	μΑ
Emitter Base Cutoff Current at -V <sub>EB</sub> = 5 V	-l <sub>EBO</sub>	-	2	mA
Collector Emitter Saturation Voltage at $-I_C = 4 \text{ A}$ , $-I_B = 16 \text{ mA}$ at $-I_C = 8 \text{ A}$ , $-I_B = 80 \text{ mA}$	-V <sub>CE(sat)</sub>		2 4	V
Base Emitter Saturation Voltage at $-I_C = 8 A$ , $-I_B = 80 mA$	-V <sub>BE(sat)</sub>	-	4.5	V
Base-Emitter On Voltage at -V <sub>CE</sub> = 4 V, -I <sub>C</sub> = 4 A	-V <sub>BE(on)</sub>	-	2.8	V
Current Gain Bandwidth Product at -V <sub>CE</sub> = 4 V, -I <sub>C</sub> = 3 A, f = 1 MHz	f⊤	4	-	MHz
Output Capacitance at -V <sub>CB</sub> = 10 V, $I_E$ = 0, $f$ = 1 MHz	Cob	-	300	pF



#### **Electrical Characteristics Curves**

7 6 6 TOP -IB=2.2mA -IB=2.2mA -IB=1.8mA -IB=1.8mA -IB=1.8mA -IB=1.8mA -IB=1.0mA -IB=1.0mA -IB=0.2mA -IB=0.2mA

Fig. 1 Output Characteristics Curve

Fig. 2 Collector Current vs. V<sub>BE</sub>

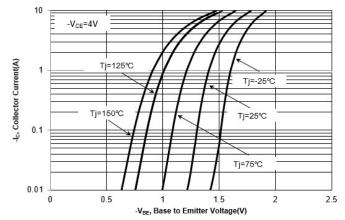


Fig. 3 hFE vs. Collector Current

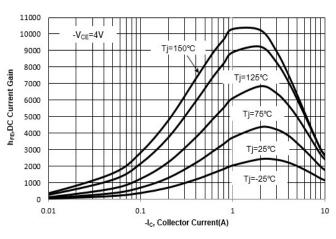


Fig. 4 V<sub>BE(sat)</sub> vs. Collector Current

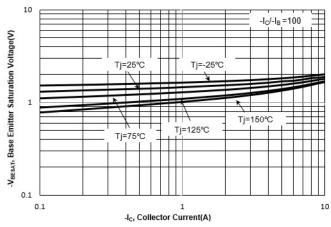


Fig. 5 V<sub>CE(sat)</sub> vs. Collector Current

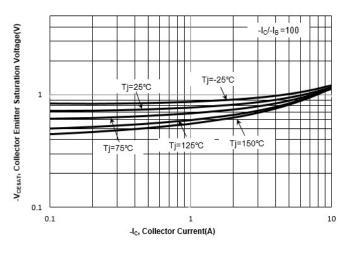
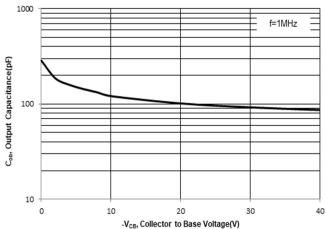


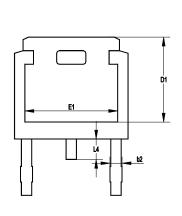
Fig 6. Output Capacitance

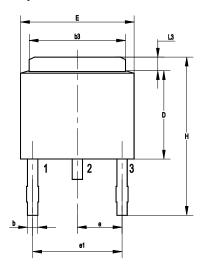


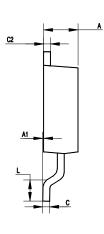


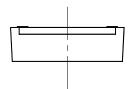
# Package Outline (Dimensions in mm)

**TO-252** 



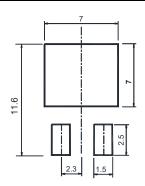






U	TIN	Α	A1	b	b2	b3	С	C2	D	D1	Е	E1	е	e1	Н	L	L3	L4
		2.5	0.15	1.0	1.15	5.5	0.65	0.65	6.2	5.4	6.7	5.0	2.30	4.60	10.7	1.78	1.20	1.10
l n	nm	2.1	0	0.5	0.65	4.9	0.4	0.4	5.6	5.0	6.1	4.6	TYP.	TYP.	9	1.40	0.85	0.51

## **Recommended Soldering Footprint**



**Packing information** 

Package	Tape Width	Pit	ch	Reel	Size	Per Reel Packing Quantity
Fackage	(mm)	mm	inch	mm	inch	Fel Neel Fackling Qualitity
TO-252	16	8 ± 0.1	0.315 ± 0.004	330	13	2,500

#### **Marking information**

" MJD127R " = Part No.

" \*\*\*\*\* " = Date Code Marking

Font type: Arial



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