

# MPS6729

Preferred Device

## One Watt Amplifier Transistor

PNP Silicon



ON Semiconductor™

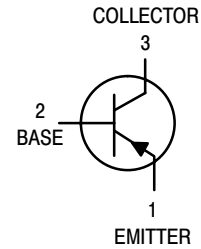
<http://onsemi.com>

### MAXIMUM RATINGS

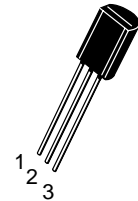
Rating	Symbol	Value	Unit
Collector–Emitter Voltage	$V_{CEO}$	–80	Vdc
Collector–Base Voltage	$V_{CBO}$	–80	Vdc
Emitter–Base Voltage	$V_{EBO}$	–4.0	Vdc
Collector Current – Continuous	$I_C$	–500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0 8.0	Watt mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	2.5 20	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	–55 to +150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

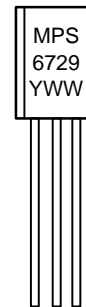
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	50	$^\circ\text{C}/\text{W}$



TO–92 (TO–226)  
CASE 29–10  
STYLE 1



### MARKING DIAGRAM



Y = Year  
WW = Work Week

### ORDERING INFORMATION

Device	Package	Shipping
MPS6729	TO–92	Bulk

Preferred devices are recommended choices for future use and best overall value.

# MPS6729

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage (Note 1.) (I <sub>C</sub> = –1.0 mA, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	–80	–	Vdc
Collector–Base Breakdown Voltage (I <sub>C</sub> = 0.1 mA, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	–80	–	Vdc
Emitter–Base Breakdown Voltage (I <sub>E</sub> = –10 μA, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	–5.0	–	Vdc
Collector Cutoff Current (V <sub>CB</sub> = –60 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	–	–0.1	μA
Emitter Cutoff Current (V <sub>EB</sub> = –5.0 Vdc, I <sub>C</sub> = 0)	I <sub>EBO</sub>	–	–10	μA

### ON CHARACTERISTICS (Note 1.)

DC Current Gain (I <sub>C</sub> = –50 mA, V <sub>CE</sub> = –1.0 Vdc) (I <sub>C</sub> = –250 mA, V <sub>CE</sub> = –1.0 Vdc)	h <sub>FE</sub>	80 50	– 250	–
Collector–Emitter Saturation Voltage (I <sub>C</sub> = –250 mA, I <sub>B</sub> = –10 mA)	V <sub>CE(sat)</sub>	–	–0.5	Vdc
Base–Emitter On Voltage (I <sub>C</sub> = –250 mA, V <sub>CE</sub> = –1.0 Vdc)	V <sub>BE(on)</sub>	–	–1.2	Vdc

### SMALL–SIGNAL CHARACTERISTICS

Collector–Base Capacitance (V <sub>CB</sub> = –10 Vdc, f = 1.0 MHz)	C <sub>cb</sub>	–	30	pF
Small–Signal Current Gain (I <sub>C</sub> = 200 mA, V <sub>CE</sub> = 5.0 V, f = 20 MHz)	h <sub>fe</sub>	2.5	25	

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

# MPS6729

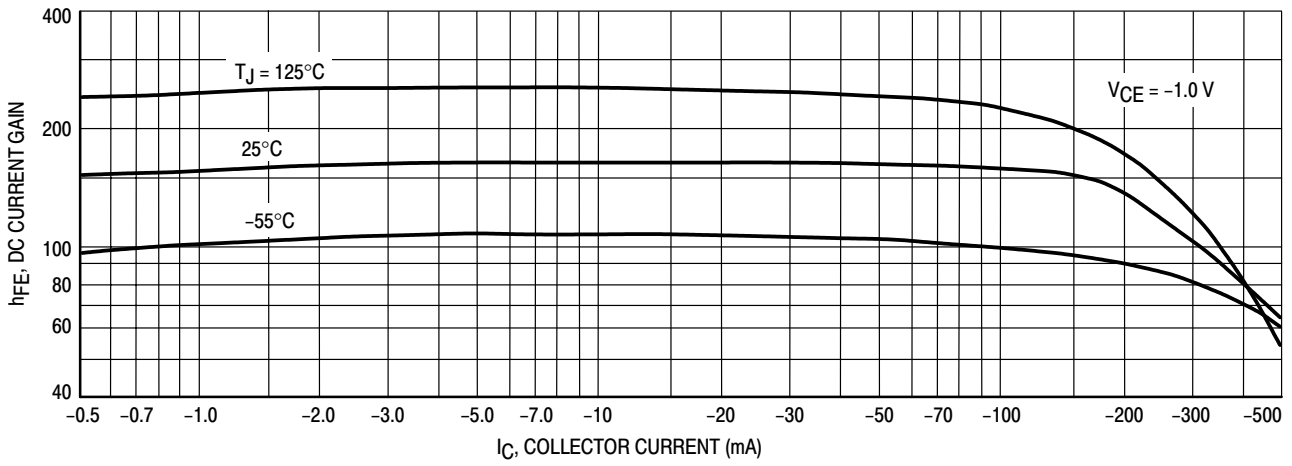


Figure 1. DC Current Gain

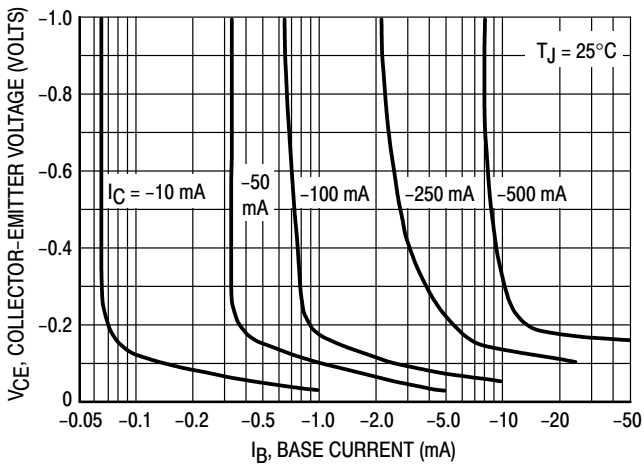


Figure 2. Collector Saturation Region

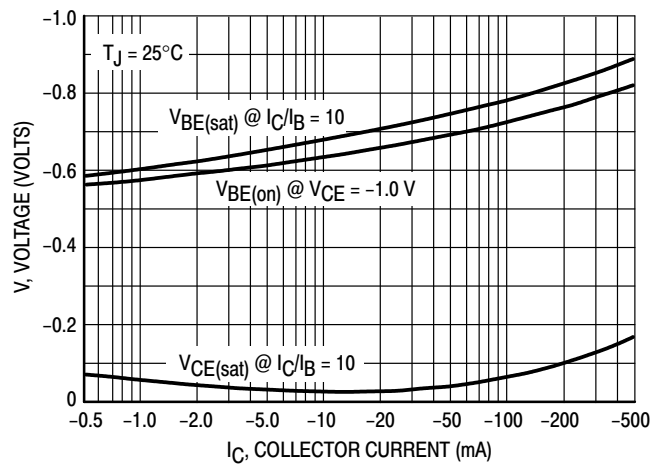


Figure 3. "On" Voltages

# MPS6729

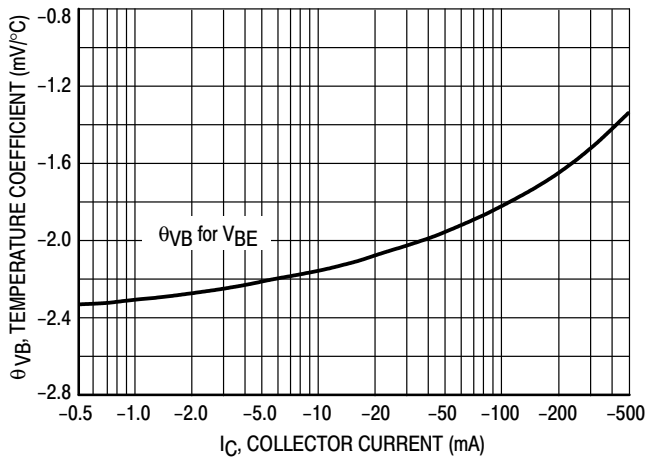


Figure 4. Base-Emitter Temperature Coefficient

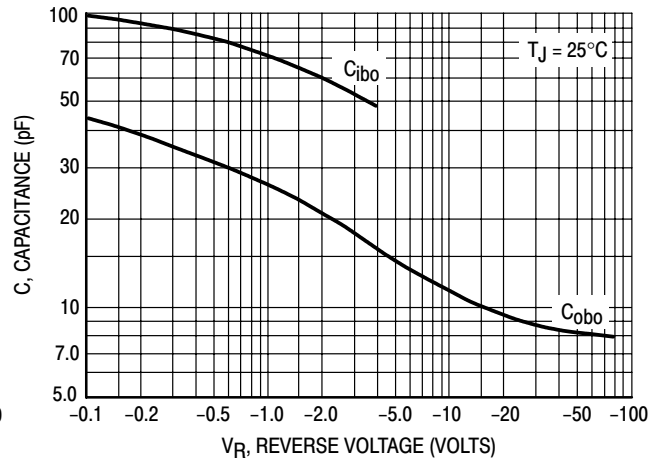


Figure 5. Capacitance

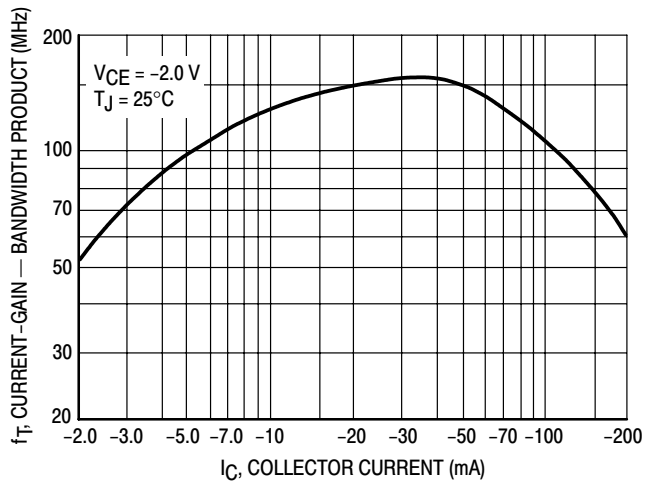


Figure 6. Current-Gain - Bandwidth Product

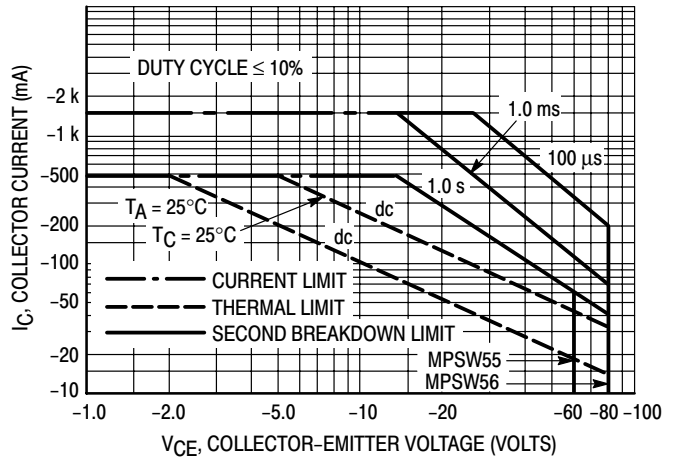
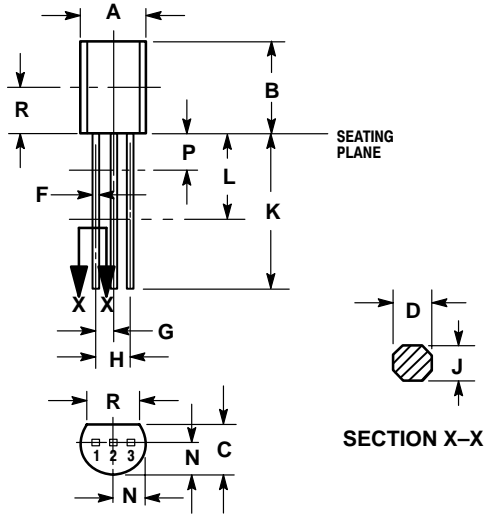


Figure 7. Active Region - Safe Operating Area

## PACKAGE DIMENSIONS

# MPS6729

TO-92 (TO-226)  
CASE 29-10  
ISSUE AL



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSIONS D AND J APPLY BETWEEN L AND K MINIMUM. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.44	5.21
B	0.290	0.310	7.37	7.87
C	0.125	0.165	3.18	4.19
D	0.018	0.021	0.457	0.533
F	0.016	0.019	0.407	0.482
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.018	0.024	0.46	0.61
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.135	---	3.43	---

**STYLE 1:**

1. EMITTER
2. BASE
3. COLLECTOR

**Notes**

**Notes**

**ON Semiconductor** and  are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

## PUBLICATION ORDERING INFORMATION

### Literature Fulfillment:

Literature Distribution Center for ON Semiconductor  
P.O. Box 5163, Denver, Colorado 80217 USA  
**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** ONlit@hibbertco.com

**N. American Technical Support:** 800-282-9855 Toll Free USA/Canada

**JAPAN:** ON Semiconductor, Japan Customer Focus Center  
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-0031  
**Phone:** 81-3-5740-2700  
**Email:** r14525@onsemi.com

**ON Semiconductor Website:** <http://onsemi.com>

For additional information, please contact your local Sales Representative.