

MPS6724, MPS6725

One Watt Darlington Transistors

NPN Silicon

Features

- Pb-Free Packages are Available*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage MPS6724 MPS6725	V_{CEO}	40 50	Vdc
Collector-Base Voltage MPS6724 MPS6725	V_{CBO}	50 60	Vdc
Emitter-Base Voltage	V_{EBO}	12	Vdc
Collector Current - Continuous	I_C	1000	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0	W mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	2.5 20	W 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	$^\circ\text{C}/\text{W}$

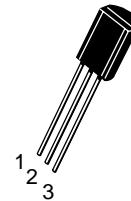
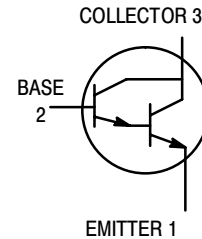
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



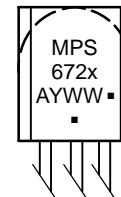
ON Semiconductor®

<http://onsemi.com>



TO-92 (TO-226)
CASE 29-10
STYLE 1

MARKING DIAGRAM



MPS672x = Device Code
x = 4 or 5
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

MPS6724, MPS6725

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector – Emitter Breakdown Voltage (Note 1) ($I_C = 1.0\text{ mA}$, $I_B = 0$)	MPS6724 MPS6725	$V_{(BR)CES}$	40 50	– –	Vdc
Collector – Base Breakdown Voltage ($I_C = 1.0\text{ }\mu\text{A}$, $I_E = 0$)	MPS6724 MPS6725	$V_{(BR)CBO}$	50 60	– –	Vdc
Emitter – Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{A}$, $I_C = 0$)		$V_{(BR)EBO}$	12	–	Vdc
Collector Cutoff Current ($V_{CB} = 30\text{ Vdc}$, $I_E = 0$) ($V_{CB} = 40\text{ Vdc}$, $I_E = 0$)	MPS6724 MPS6725	I_{CBO}	– –	100 100	nAdc
Emitter Cutoff Current ($V_{EB} = 10\text{ Vdc}$, $I_C = 0$)		I_{EBO}	–	100	nAdc

ON CHARACTERISTICS (Note 1)

DC Current Gain ($I_C = 200\text{ mA}$, $V_{CE} = 5.0\text{ Vdc}$) ($I_C = 1000\text{ mA}$, $V_{CE} = 5.0\text{ Vdc}$)	h_{FE}	25,000 4,000	– 40,000	–
Collector – Emitter Saturation Voltage ($I_C = 1000\text{ mA}$, $I_B = 2.0\text{ mA}$)	$V_{CE(sat)}$	–	1.5	Vdc
Base – Emitter On Voltage ($I_C = 1000\text{ mA}$, $V_{CE} = 5.0\text{ Vdc}$)	$V_{BE(on)}$	–	2.0	Vdc

SMALL-SIGNAL CHARACTERISTICS

Current – Gain – Bandwidth Product ($I_C = 200\text{ mA}$, $V_{CE} = 5.0\text{ Vdc}$, $f = 100\text{ MHz}$)	f_T	100	1000	MHz
Collector – Base Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{cb}	–	10	pF

1. Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$; Duty Cycle $\leq 2.0\%$.

TYPICAL CHARACTERISTICS

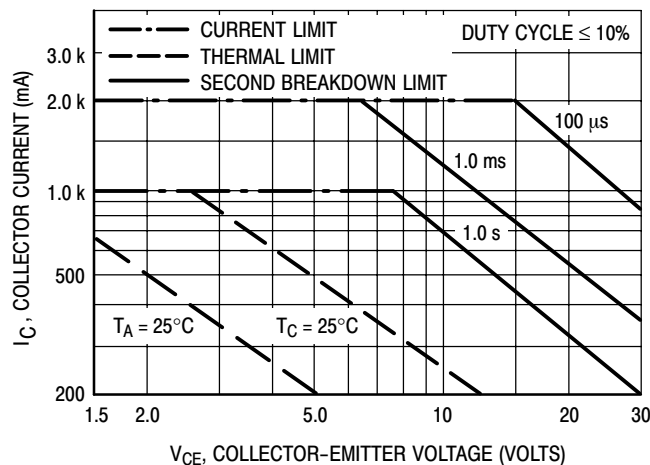


Figure 1. Active Region — Safe Operating Area

MPS6724, MPS6725

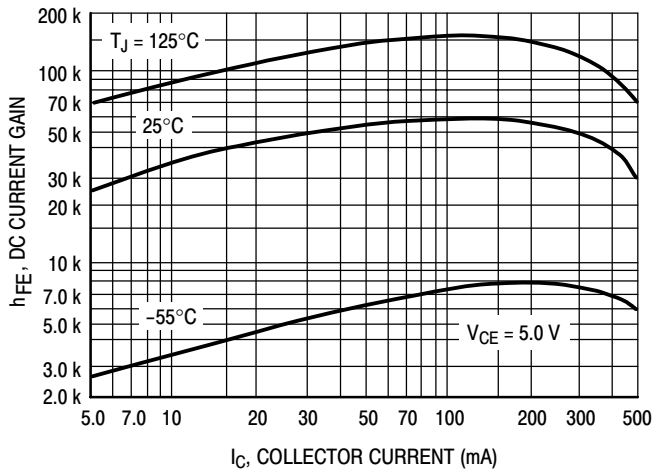


Figure 2. DC Current Gain

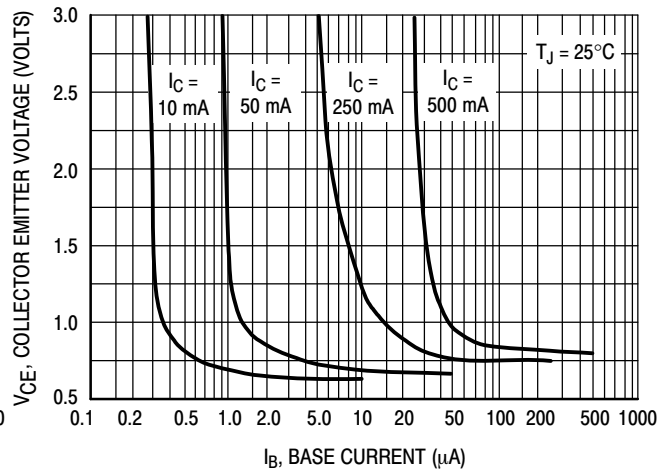


Figure 3. Collector Saturation Region

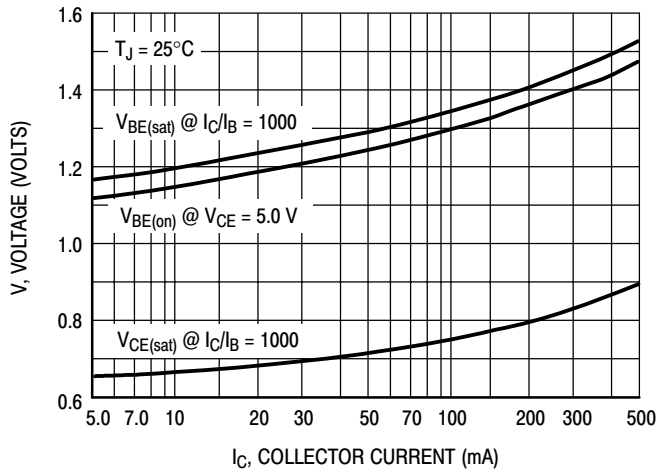


Figure 4. "ON" Voltages

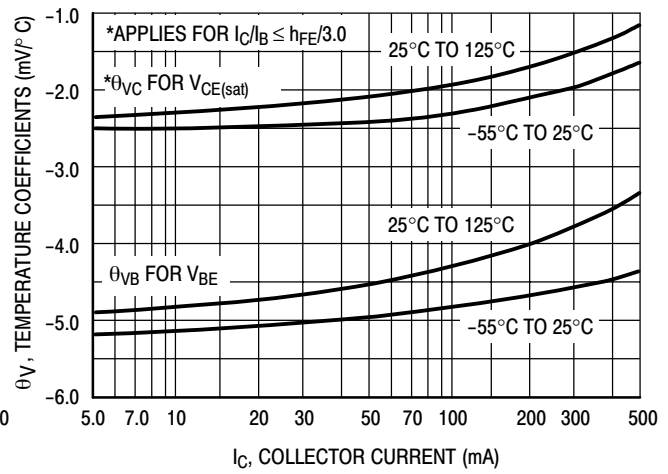


Figure 5. Temperature Coefficients

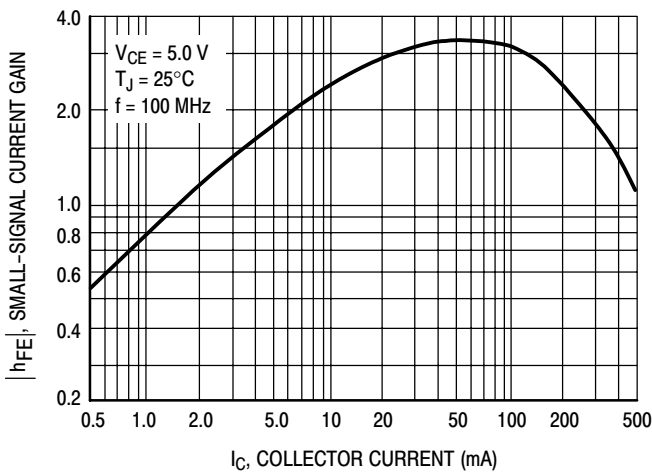


Figure 6. High Frequency Current Gain

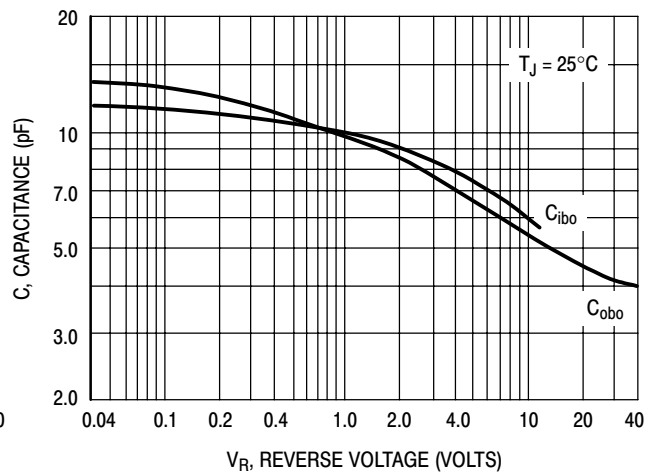


Figure 7. Capacitance

MPS6724, MPS6725

ORDERING INFORMATION

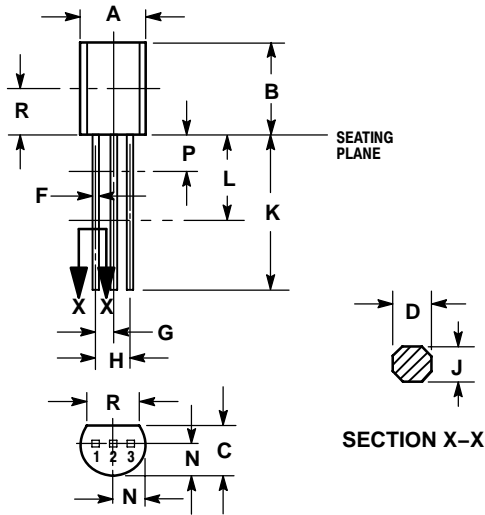
Device	Package	Shipping†
MPS6724	TO-92	5000 Units / Bulk
MPS6724G	TO-92 (Pb-Free)	
MPS6725	TO-92	5000 Units / Bulk
MPS6725G	TO-92 (Pb-Free)	
MPS6724RLRA	TO-92	2000 Units / Tape & Reel
MPS6724RLRAG	TO-92 (Pb-Free)	
MPS6725RLRP	TO-92	2000 Units / Tape & Ammo Box
MPS6725RLRPG	TO-92 (Pb-Free)	

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MPS6724, MPS6725

PACKAGE DIMENSIONS

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:

- PIN 1. EMITTER
- BASE
- COLLECTOR

ON Semiconductor and are registered 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. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082-1312 USA
Phone: 480-829-7710 or 800-344-3860 Toll Free USA/Canada
Fax: 480-829-7709 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

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

Japan: ON Semiconductor, Japan Customer Focus Center
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051
Phone: 81-3-5773-3850

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

Order Literature: <http://www.onsemi.com/litorder>

For additional information, please contact your local Sales Representative.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [ON Semiconductor](#) manufacturer:

Other Similar products are found below :

[1.5SMC82AT3G](#) [74LCX574WM](#) [FST3126MX](#) [MC78L08ACP](#) [MMBTA42](#) [FDD8424H_F085A](#) [NTZD3154NT1H](#) [KSA1015GRTA](#)
[BAT42XV2](#) [007851X](#) [702607H](#) [MC33079DG](#) [MC34072DR2G](#) [MC34151P](#) [MC78L08ACDG](#) [74VHC14MX](#) [74VHC541MTCX](#)
[FAN3111ESX](#) [FDMC86262P](#) [FDMD8530](#) [FEBFL7733A_L53U021A](#) [FEBFOD8333](#) [MM74HC138MX](#) [MMBZ5233B](#) [FOD3120SD](#)
[FPAB30BH60B](#) [FQP2N80](#) [1.5KE16AG](#) [MT9V115EBKSTCH-GEVB](#) [NB6L295MNGEVB](#) [NB7L1008MNGEVB](#) [NC7WZ126K8X](#)
[NCL30000LED2GEVB](#) [NCN9252MUGEVB](#) [NCP1075PSRGEVB](#) [NCV4274CDT33RKG](#) [NCV887100D1R2G](#) [NDT2955](#) [1N5339B](#)
[NSIC2030JBT3G](#) [NV890231MWTXGEVB](#) [CAT4101AEVB](#) [KA7818ETU](#) [S3JB](#) [2SC5569-TD-E](#) [FEBFL7734_L55L008A](#) [1V5KE39CA](#)
[FNB33060T](#) [AMIS30422DBGEBV](#) [AMIS3062XGEVK](#)