



**THE DATASHEET OF  
MPSW63RLRA**



# ON Semiconductor

## Is Now

# onsemi™

To learn more about onsemi™, please visit our website at  
[www.onsemi.com](http://www.onsemi.com)

---

**onsemi** and **onsemi** and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi** product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** 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. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** 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. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** 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 **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner. Other names and brands may be claimed as the property of others.

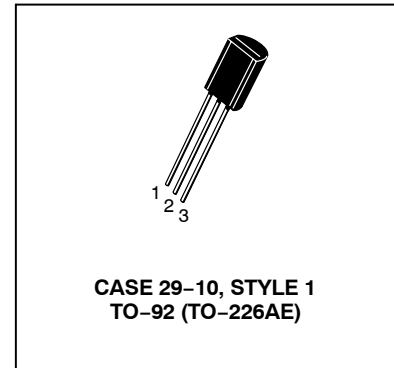
# One Watt Darlington Transistors

## PNP Silicon

**MPSW63**  
**MPSW64\***

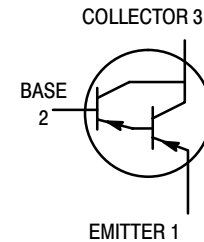
\*ON Semiconductor Preferred Device

- These devices are available in Pb-free package(s). Specifications herein apply to both standard and Pb-free devices. Please see our website at [www.onsemi.com](http://www.onsemi.com) for specific Pb-free orderable part numbers, or contact your local ON Semiconductor sales office or representative.



### MAXIMUM RATINGS

Rating	Symbol	MPSW63 MPSW64	Unit
Collector – Emitter Voltage	$V_{CES}$	-30	Vdc
Collector – Base Voltage	$V_{CBO}$	-30	Vdc
Emitter – Base Voltage	$V_{EBO}$	-10	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	$^\circ\text{C}/\text{W}$

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

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

### OFF CHARACTERISTICS

Collector – Emitter Breakdown Voltage ( $I_C = -100 \mu\text{Adc}, V_{BE} = 0$ )	$V_{(BR)CES}$	-30	—	Vdc
Collector Cutoff Current ( $V_{CB} = -30 \text{Vdc}, I_E = 0$ )	$I_{CBO}$	—	-100	nAdc
Emitter Cutoff Current ( $V_{EB} = -10 \text{Vdc}, I_C = 0$ )	$I_{EBO}$	—	-100	nAdc

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

# MPSW63 MPSW64

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

Characteristic	Symbol	Min	Max	Unit
<b>ON CHARACTERISTICS<sup>(1)</sup></b>				
DC Current Gain ( $I_C = -10\text{ mAdc}$ , $V_{CE} = -5.0\text{ Vdc}$ )	$h_{FE}$	5,000	—	—
	MPSW63 MPSW64	10,000	—	—
( $I_C = -100\text{ mAdc}$ , $V_{CE} = -5.0\text{ Vdc}$ )	MPSW63	10,000	—	—
	MPSW64	20,000	—	—
Collector–Emitter Saturation Voltage ( $I_C = -100\text{ mAdc}$ , $I_B = -0.1\text{ mAdc}$ )	$V_{CE(sat)}$	—	-1.5	Vdc
Base–Emitter On Voltage ( $I_C = -100\text{ mAdc}$ , $V_{CE} = -5.0\text{ Vdc}$ )	$V_{BE(on)}$	—	-2.0	Vdc

## SMALL-SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product <sup>(2)</sup> ( $I_C = -10\text{ mAdc}$ , $V_{CE} = -5.0\text{ Vdc}$ , $f = 100\text{ MHz}$ )	$f_T$	125	—	MHz
--	-------	-----	---	-----

1. Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .
2.  $f_T = |h_{fe}| \cdot f_{test}$ .

## TYPICAL ELECTRICAL CHARACTERISTICS

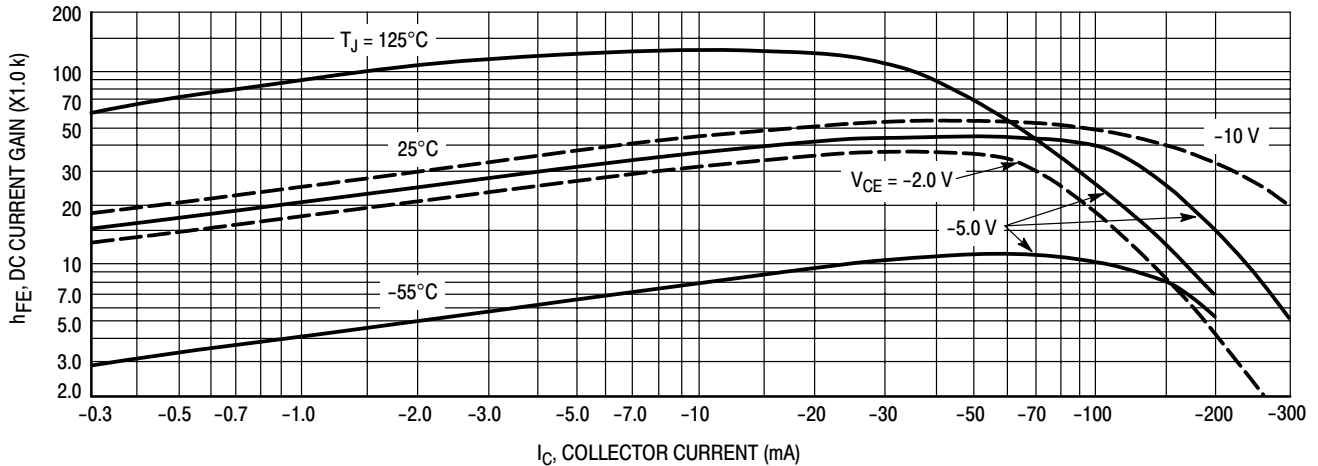


Figure 1. DC Current Gain

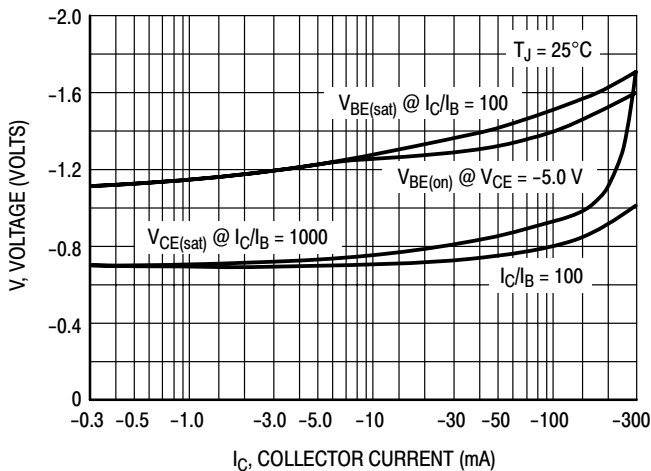


Figure 2. "ON" Voltage

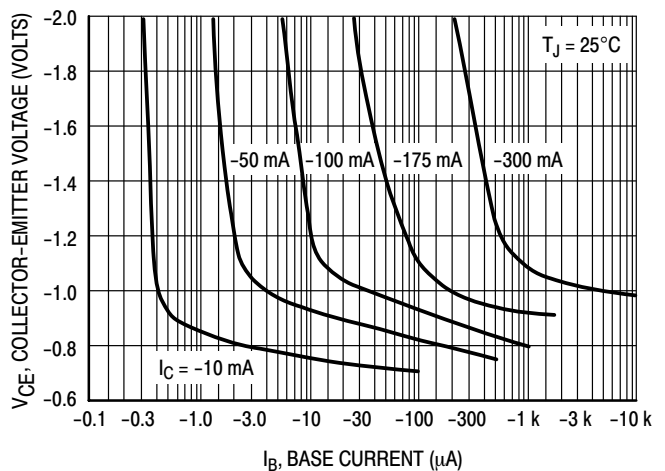


Figure 3. Collector Saturation Region

# MPSW63 MPSW64

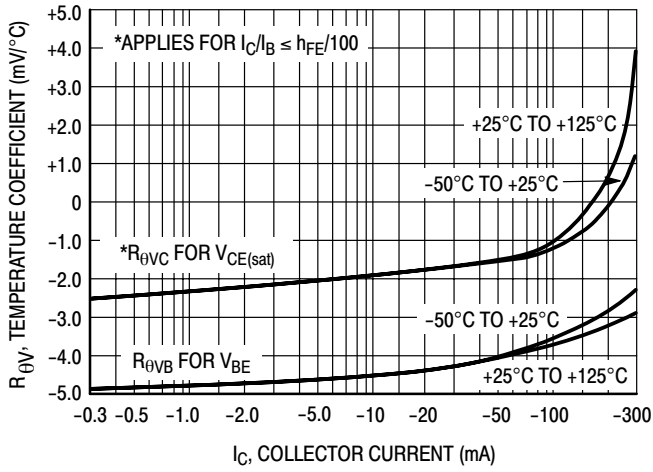


Figure 4. Temperature Coefficients

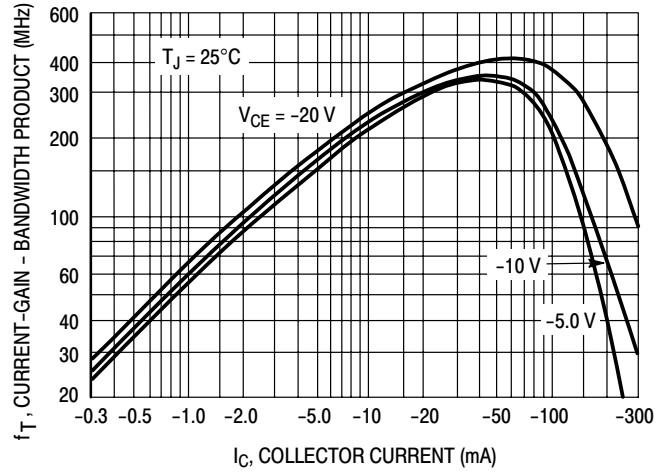


Figure 5. Current-Gain — Bandwidth Product

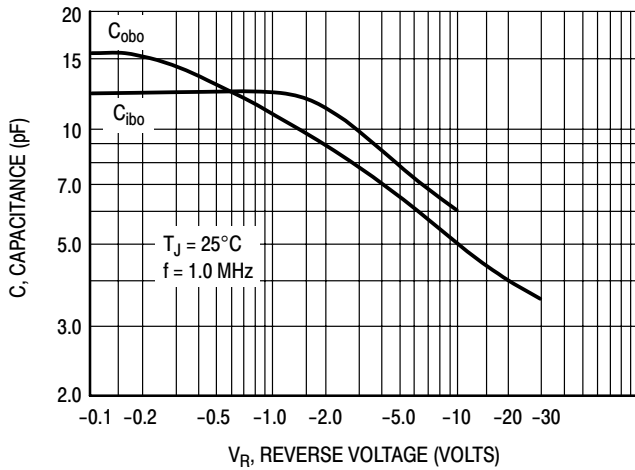


Figure 6. Capacitance

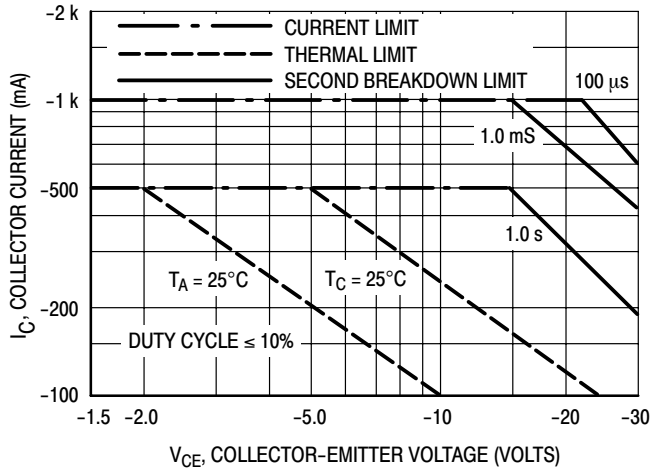


Figure 7. Active Region, Safe Operating Area



## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View MPSW63RLRA on WIN SOURCE](#)

 [ON Semiconductor](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management