



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TND523SS — ExPD(Excellent Power Device) Single-phase High Side Drive Application

Features

- Single-phase high side drive
- Allows simplified configuration of driver circuit
- Fully compatible input to LSTTL/CMOS
- Output current: 170mA Source, 340mA Sink
- Monolithic structure
- Withstand voltage of 600V is assured
- High-speed switching
- Halogen free compliance

Specifications

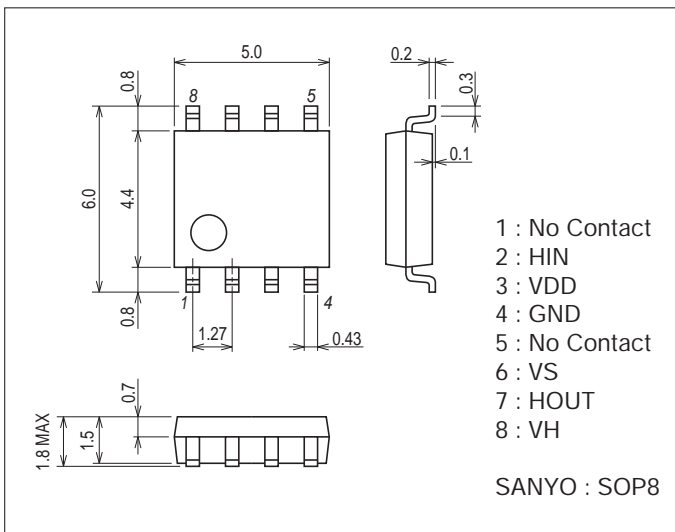
Absolute Maximum Ratings at Ta=25°C (All voltage parameters are absolute voltage referenced to GND)

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---------------------|--|--|------|
| High Side Floating Supply Voltage | V _H | | -0.3 to 625 | V |
| High Side Floating Supply Offset Voltage | V _S | | V _H -25 to V _H +0.3 | V |
| High Side Output Voltage | V _{HOUT} | | V _S -0.3 to V _H +0.3 | V |
| Logic Supply Voltage | V _{DD} | | -0.3 to 25 | V |
| Logic Input Voltage | V _{HIN} | | -0.3 to V _{DD} +0.3 | V |
| The Maximum Allowable Offset Voltage Supply | dV _S /dt | | 50 | V/ns |
| Allowable Power Dissipation | PD | | 0.3 | W |
| | | When mounted on ceramic substrate (1200mm ² ×0.8mm) | 1.2 | W |
| Junction Temperature | T _j | | -55 to +150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Package Dimensions

unit : mm (typ)

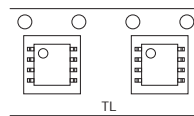
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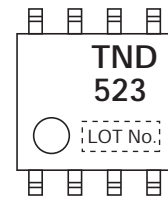
Product & Package Information

- Package : SOP8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 1,000 pcs./reel

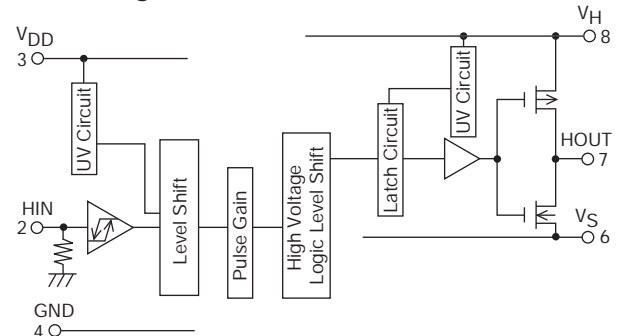
Packing Type: TL



Marking



Block Diagram



TND523SS

Recommend Operating Conditions at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|--|-------------------|------------|--|------|
| High Side Floating Supply Voltage | V _H | | V _S +10 to V _S +20 | V |
| High Side Floating Supply Offset Voltage | V _S | | 0 to 600 | V |
| High Side Output Voltage | V _{HOUT} | | V _S to V _H | V |
| Logic Supply Voltage | V _{DD} | | 10 to 20 | V |
| Logic Input Voltage | V _{HIN} | | 0 to V _{DD} | V |
| Ambient Temperature | T _{opr} | | -40 to +125 | °C |

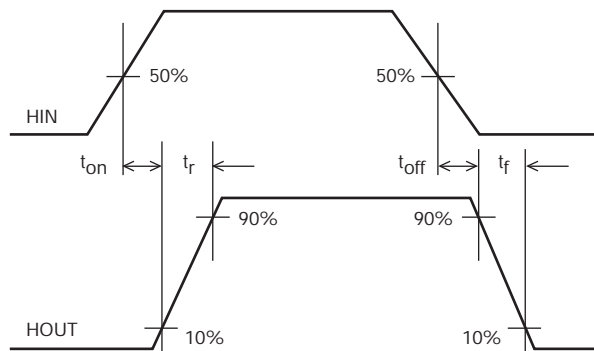
AC Characteristics at Ta=25°C (V_{DD}=V_{HS}=15V, C_L=1000pF)

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---------------------|------------------|--------------------|---------|-----|-----|------|
| | | | min | typ | max | |
| Turn-ON Delay Time | t _{on} | V _S =0V | 60 | 90 | 120 | ns |
| Turn-OFF Delay Time | t _{off} | V _S =0V | 55 | 85 | 115 | ns |
| Turn-ON Rise Time | t _r | | 50 | 80 | 110 | ns |
| Turn-OFF Fall Time | t _f | | 20 | 35 | 55 | ns |

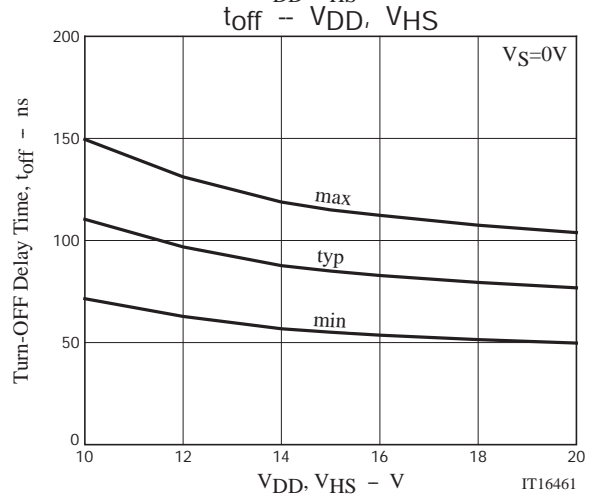
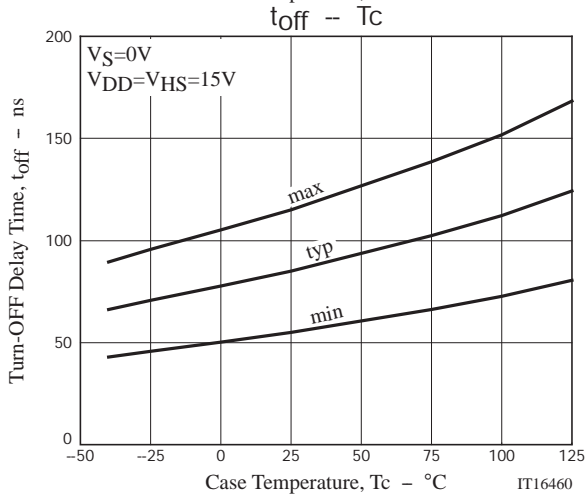
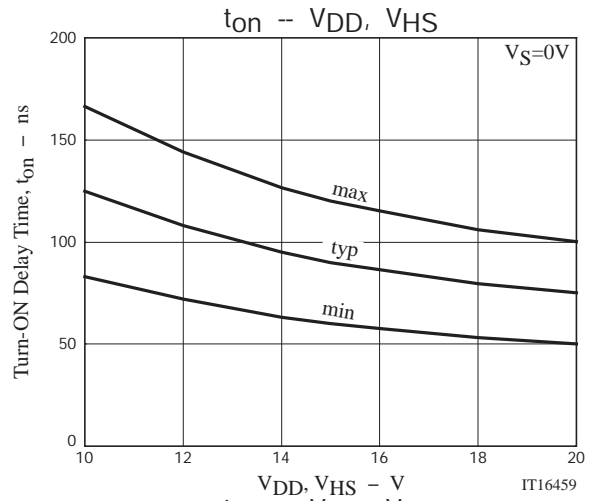
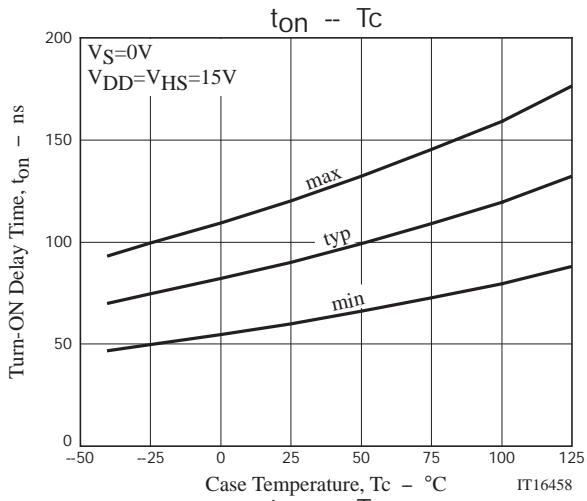
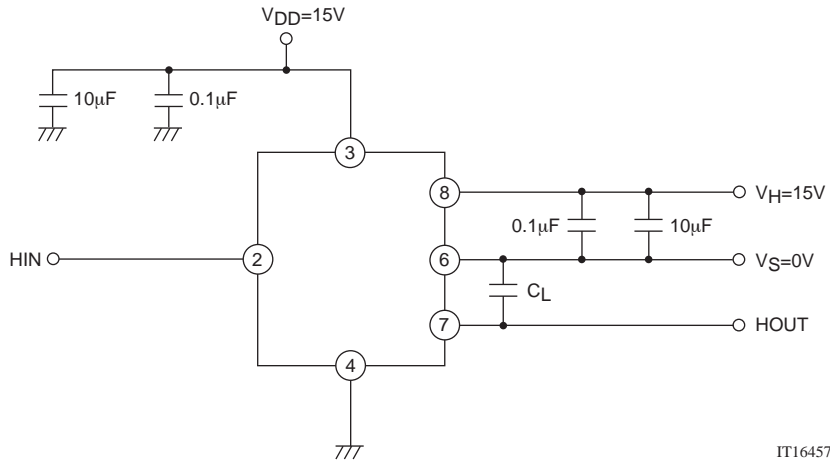
DC Characteristics at Ta=25°C (V_{DD}=V_{HS}=15V)

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|--------------------|--|---------|-----|-----|------|
| | | | min | typ | max | |
| Logic "1" Input Voltage | V _{IH} | V _{DD} =10 to 20V | 3.0 | | | V |
| Logic "0" Input Voltage | V _{IL} | V _{DD} =10 to 20V | | | 0.8 | V |
| High-level Output Voltage, V _{BIAS} -V _O | V _{OH} | V _{HIN} =V _{IH} , I _O =0A | | | 0.1 | V |
| Low-level Output Voltage, V _O | V _{OL} | V _{HIN} =V _{IL} , I _O =0A | | | 0.1 | V |
| Offset Supply Leakage Current | I _{LK} | V _H =V _S =600V | | | 10 | μA |
| Quiescent V _H Supply Current | I _{QH} | V _{HIN} =0V or V _{DD} | | 70 | 120 | μA |
| Quiescent V _{DD} Supply Current | I _{QDD} | V _{HIN} =0V or V _{DD} | | 140 | 230 | μA |
| Logic "1" Input Bias Current | I _{IN+} | V _{HIN} =V _{DD} | | 20 | 55 | μA |
| Logic "0" Input Bias Current | I _{IN-} | V _{HIN} =0V | | | 1 | μA |
| V _H Supply Undervoltage Positive Going Threshold | V _{HUV+} | | 7.6 | 8.9 | 9.9 | V |
| V _H Supply Undervoltage Negative Going Threshold | V _{HUV-} | | 6.7 | 8.1 | 9.5 | V |
| V _{DD} Supply Undervoltage Positive Going Threshold | V _{DDUV+} | | 7.6 | 8.9 | 9.9 | V |
| V _{DD} Supply Undervoltage Negative Going Threshold | V _{DDUV-} | | 6.7 | 8.1 | 9.5 | V |
| Output High Short Circuit Pulsed Current | I _{O+} | V _{HOUT} =0V, V _{HIN} =15V, PW≤10μs | 170 | 200 | | mA |
| Output Low Short Circuit Pulsed Current | I _{O-} | V _{HOUT} =15V, V _{HIN} =0V, PW≤10μs | 340 | 400 | | mA |

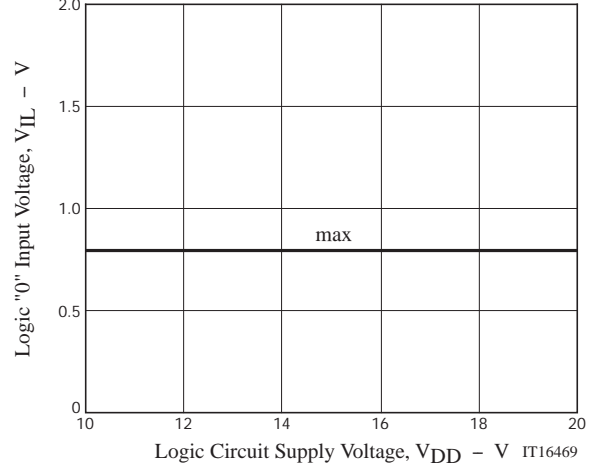
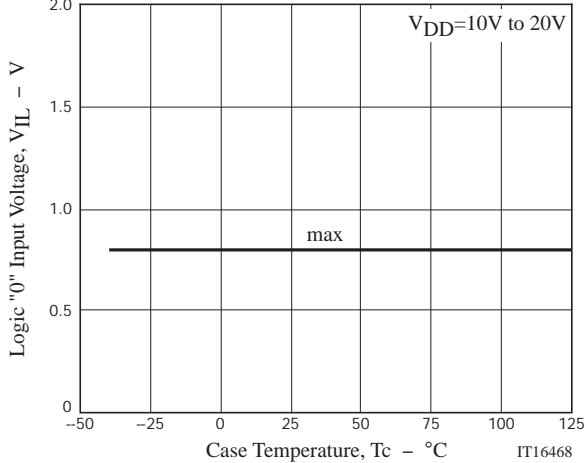
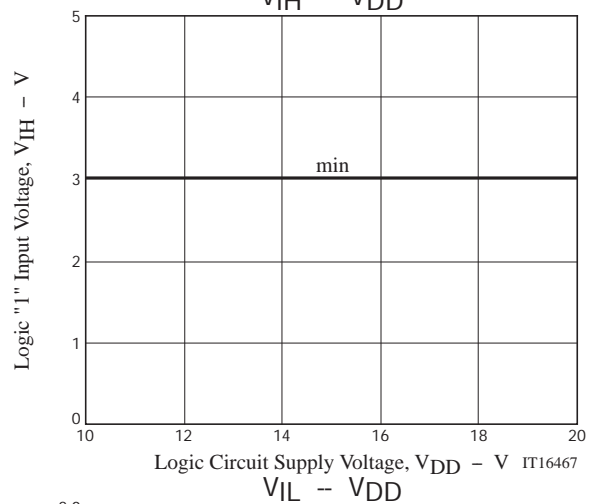
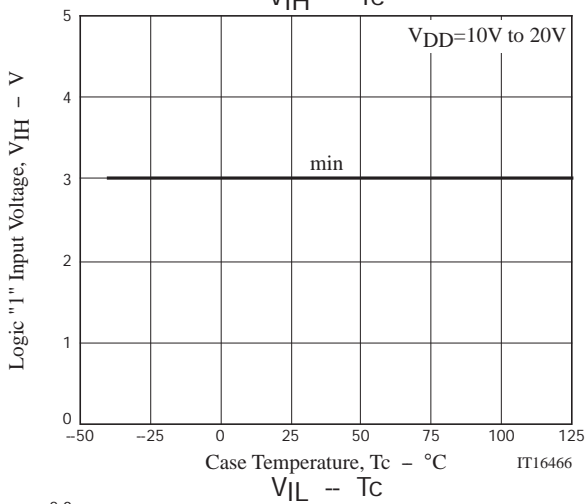
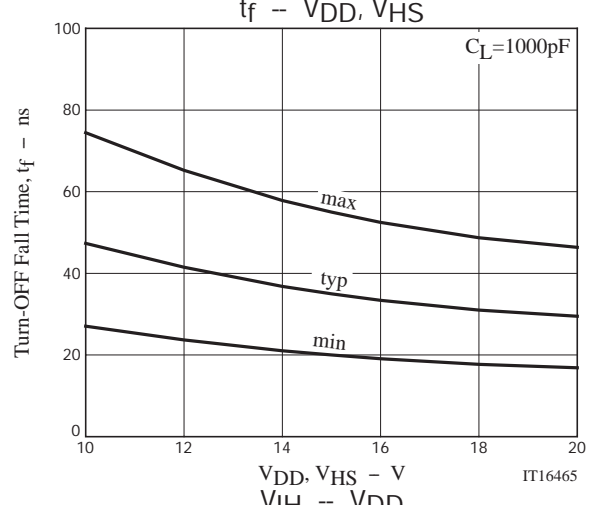
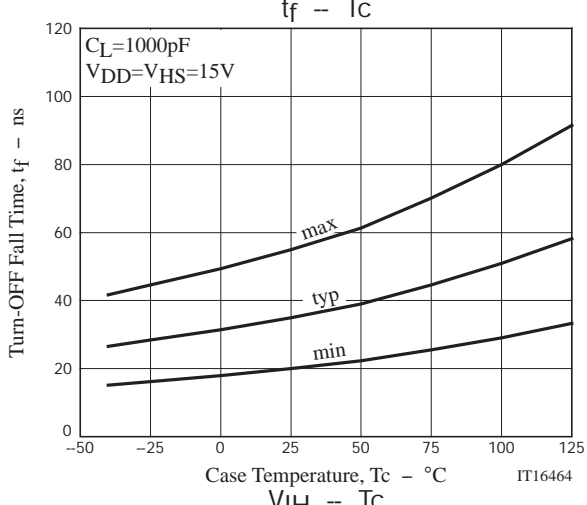
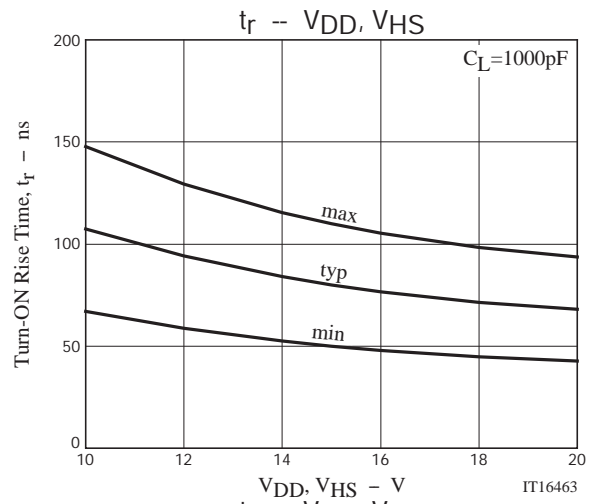
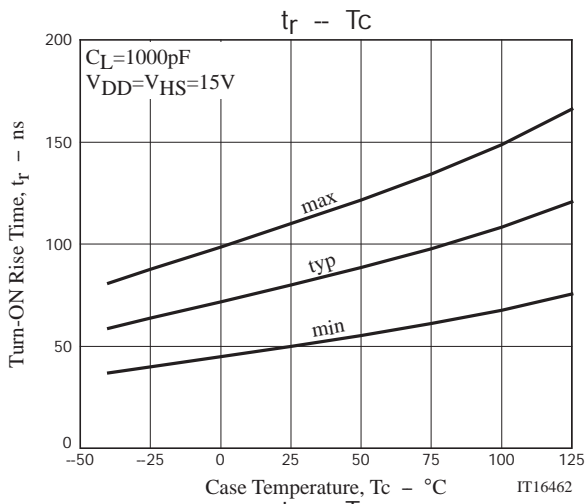
Switching Time Waveform Definition

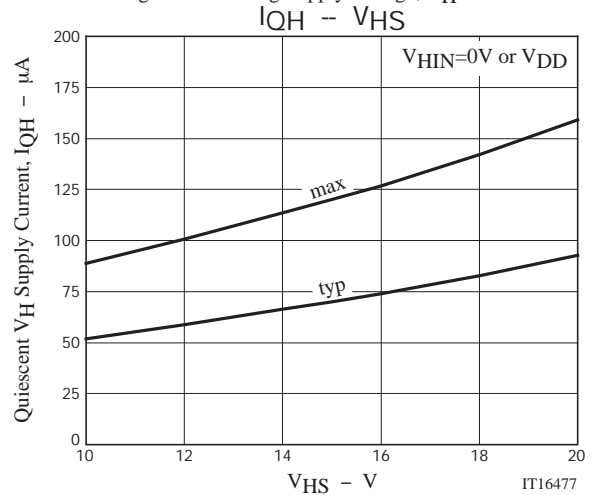
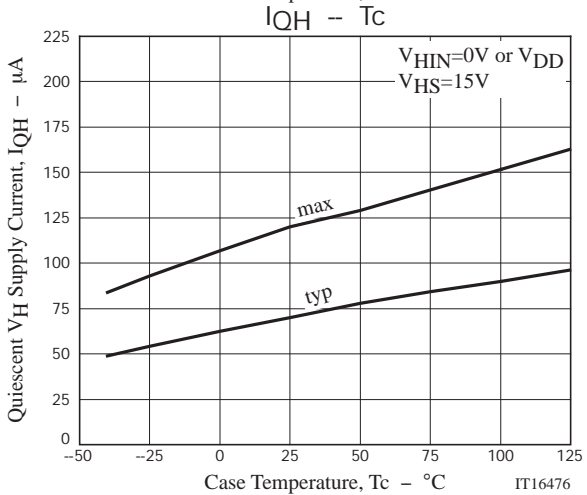
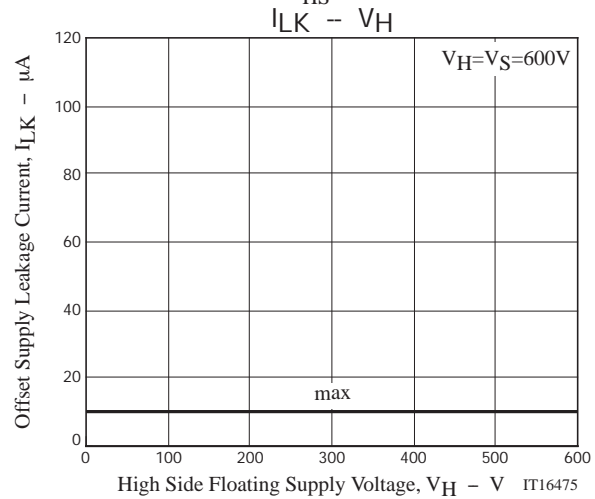
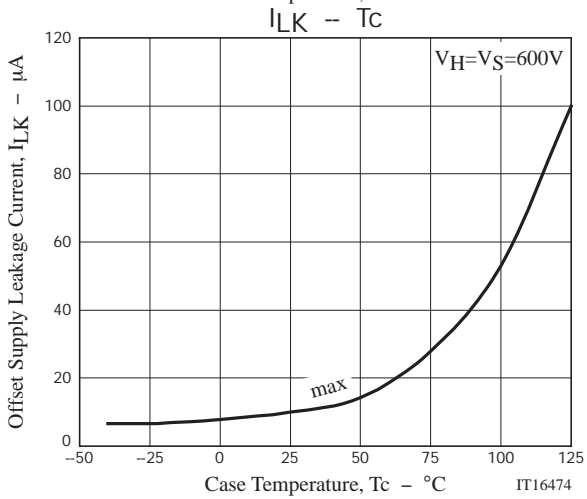
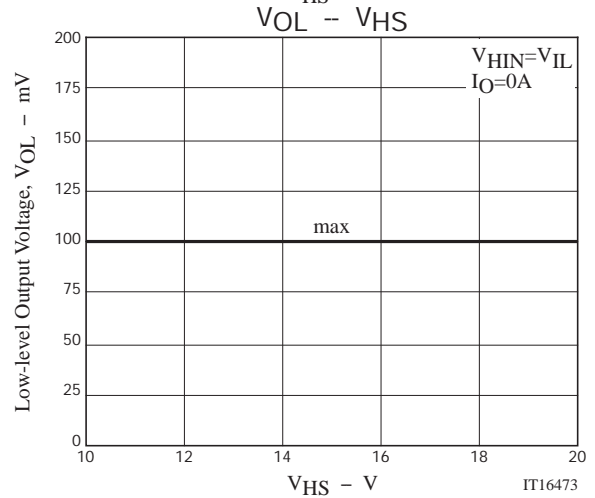
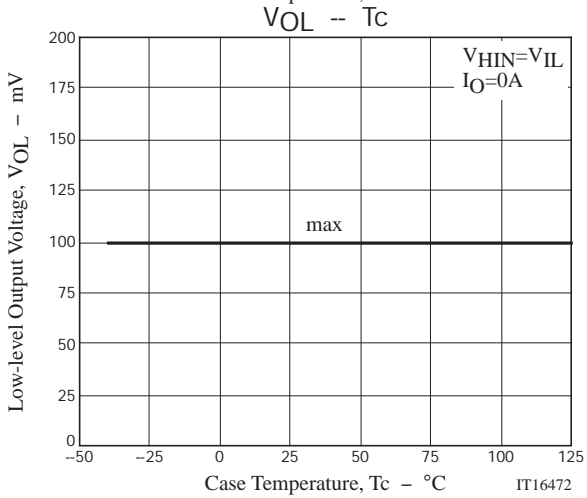
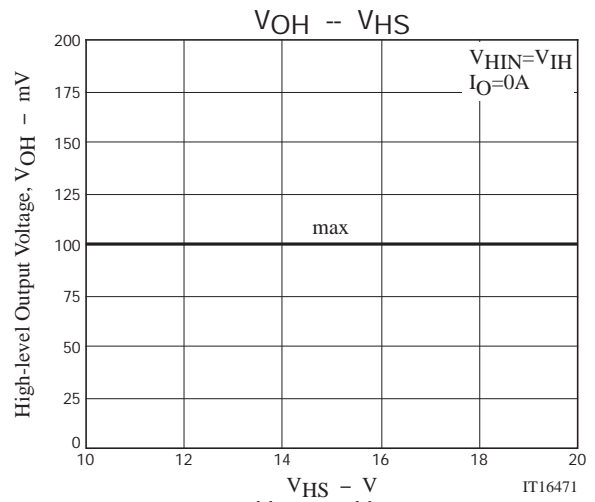
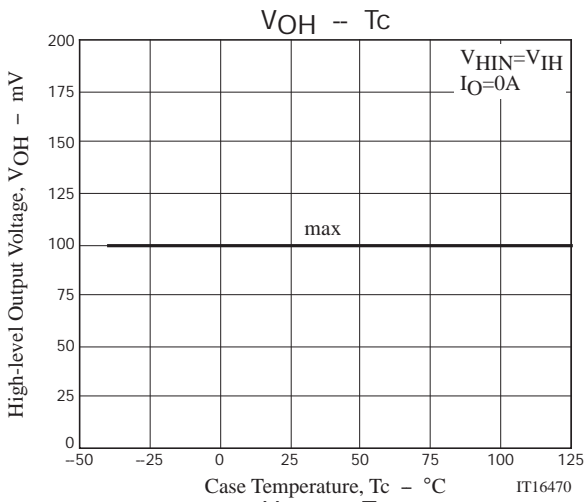


Switching Time Test Circuit

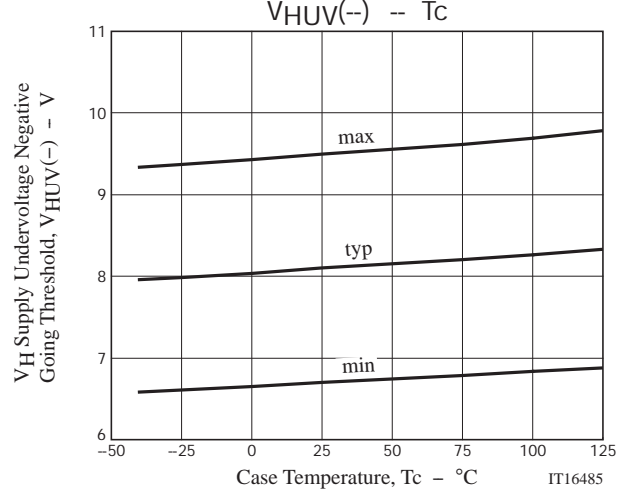
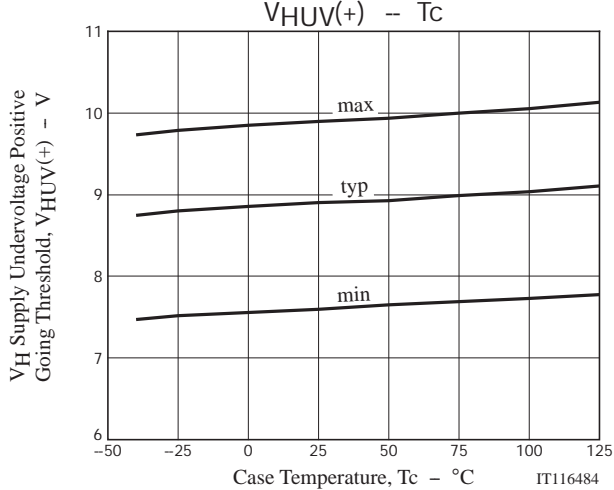
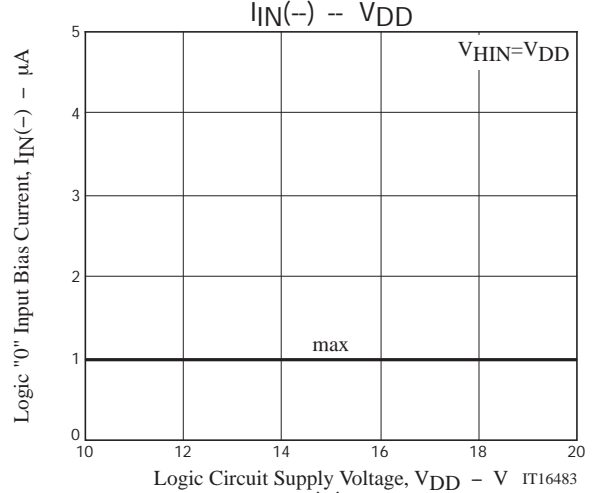
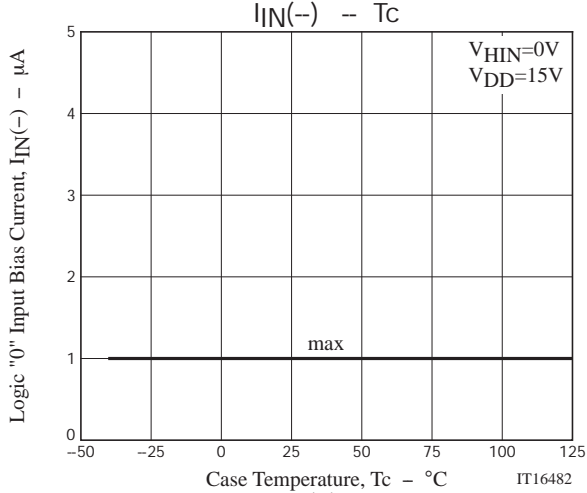
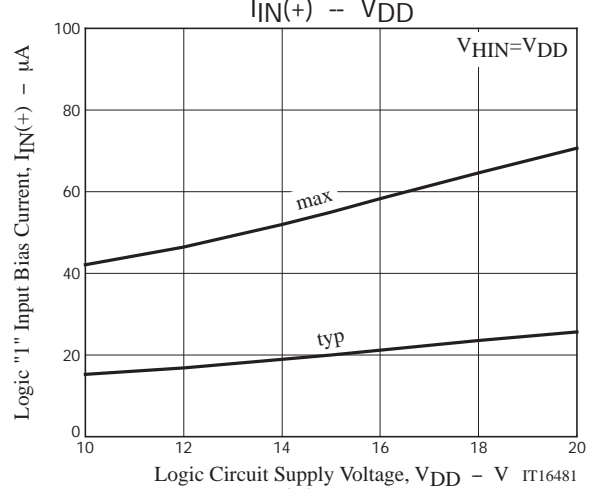
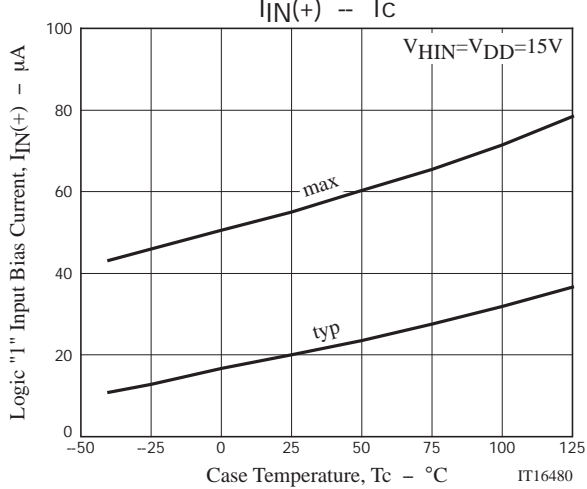
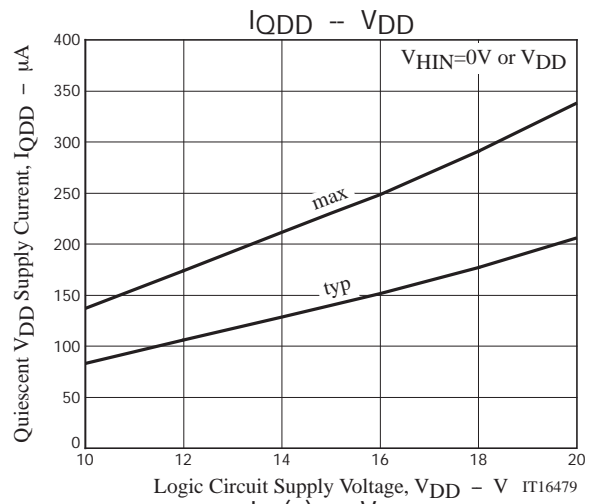
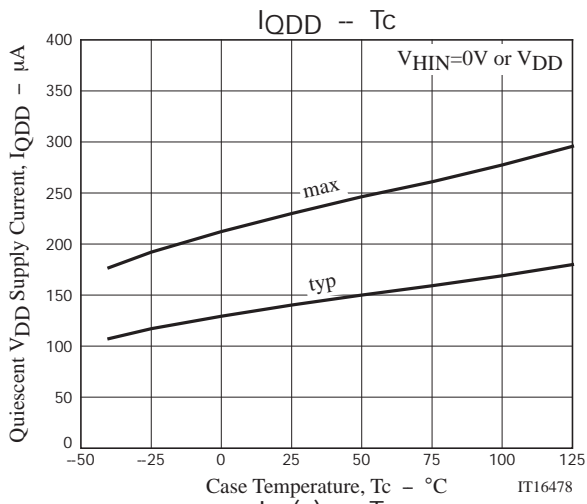


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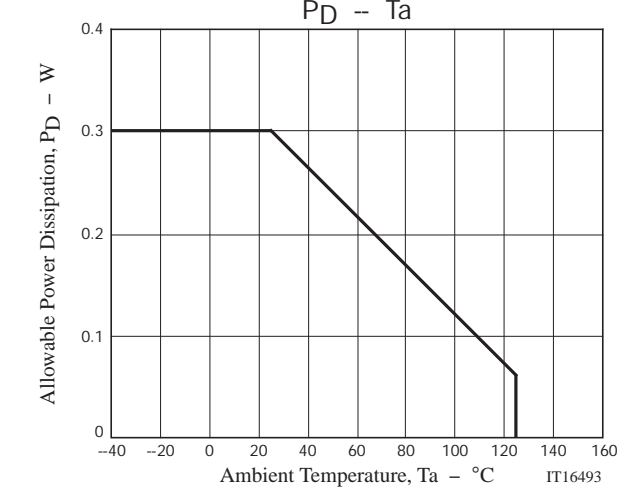
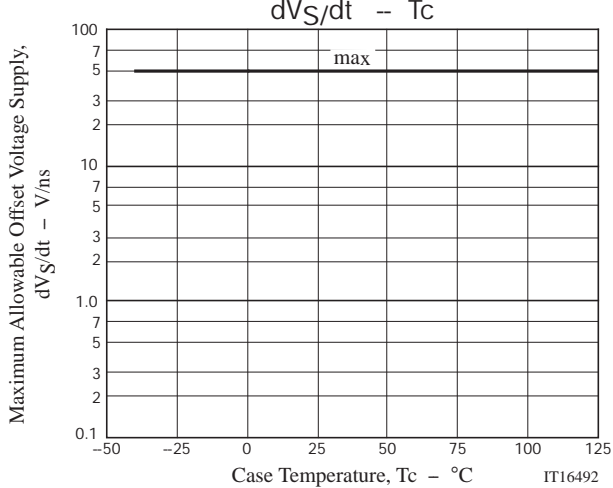
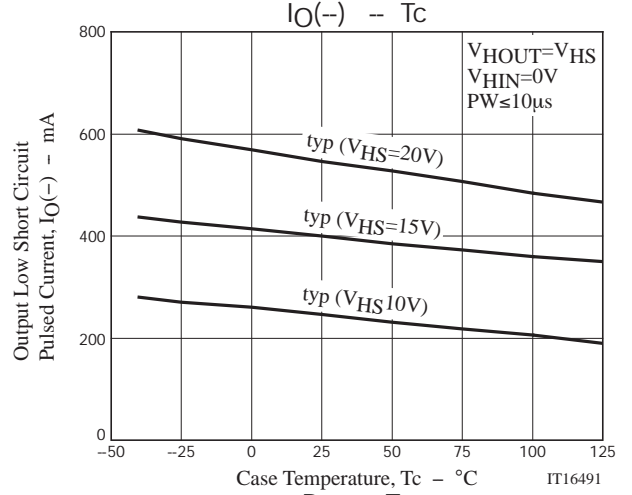
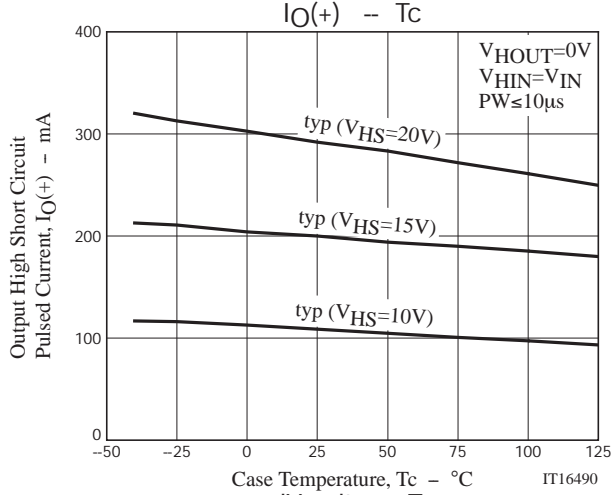
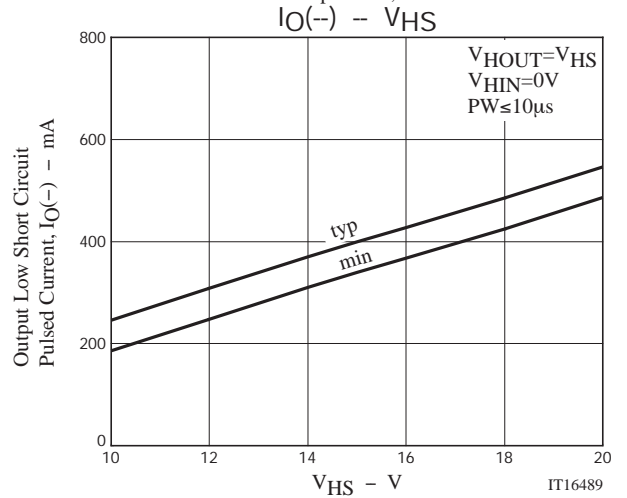
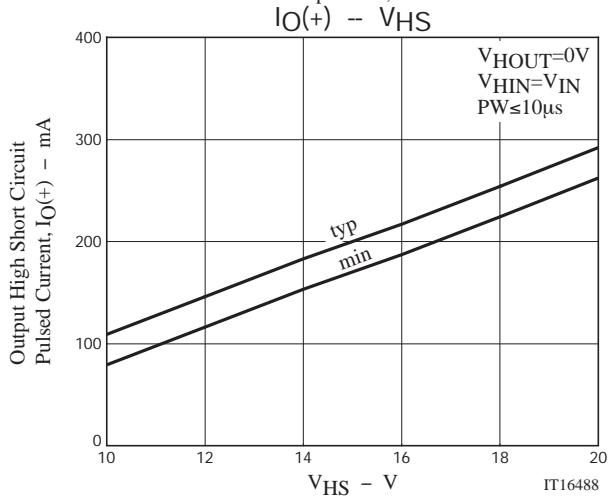
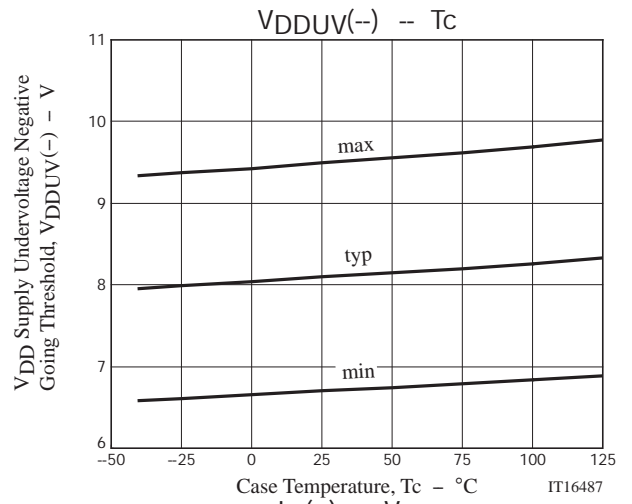
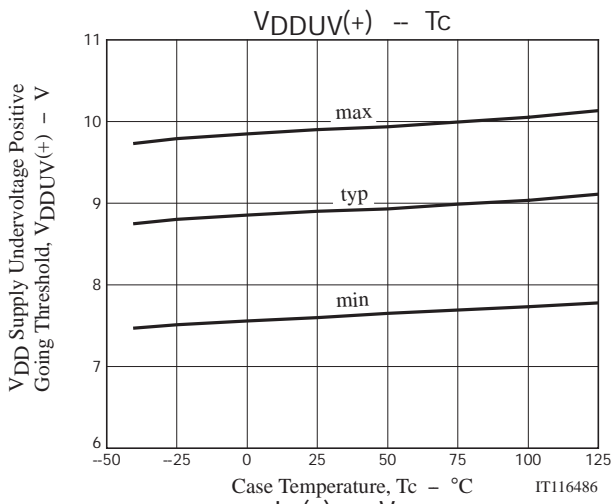


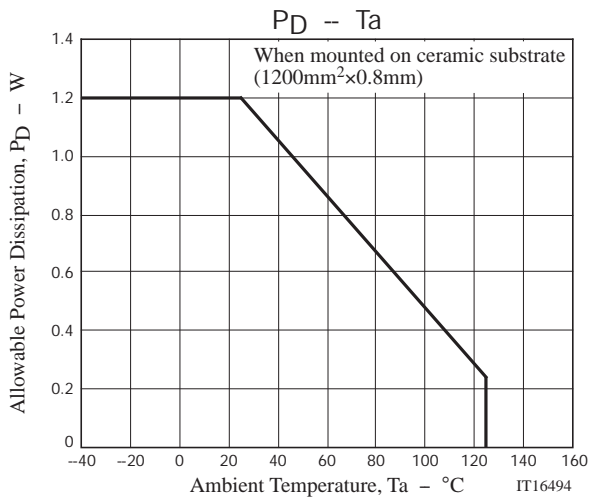


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