

Self-Protected Low Side Driver with Temperature and Current Limit

42 V, 14 A, Single N-Channel

NCV8403A, NCV8403B

NCV8403A/B is a three terminal protected Low-Side Smart Discrete device. The protection features include overcurrent, overtemperature, ESD and integrated Drain-to-Gate clamping for overvoltage protection. This device offers protection and is suitable for harsh automotive environments.

Features

- Short Circuit Protection
- Thermal Shutdown with Automatic Restart
- Over Voltage Protection
- Integrated Clamp for Inductive Switching
- ESD Protection

NCV8403A, NCV8403B

MAXIMUM RATINGS

Rating	Symbol	Value	Unit

NCV8403A, NCV8403B

MOSFET ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

I_{DQ} μA					
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51((th.892 35.88.5213 T562. un18 0 8 425.6833 77695276.021358742071 562. un18 0 0 8 496.8567 678.7276 T51 15.8 T* (51)Tj ET 483.

NCV8403A, NCV8403B

TYPICAL PERFORMANCE CURVES

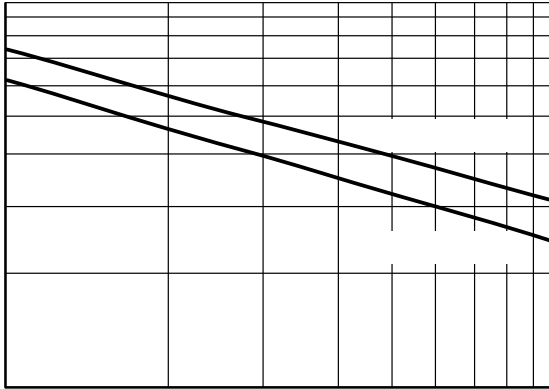


Figure 2. Single Pulse Maximum Current vs. Load Inductance

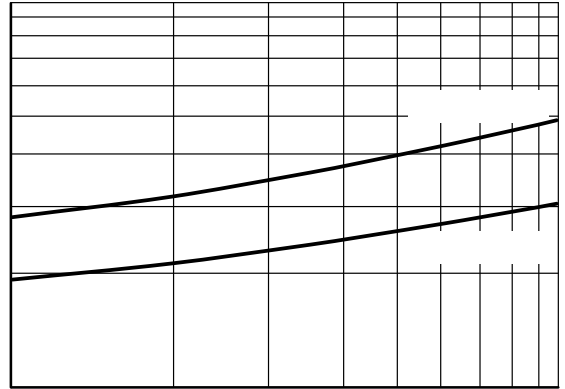


Figure 3. Single Pulse Maximum Switching Energy vs. Load Inductance



Figure 4. Single Pulse Maximum Inductive Switch off Current vs. Time in Clamp

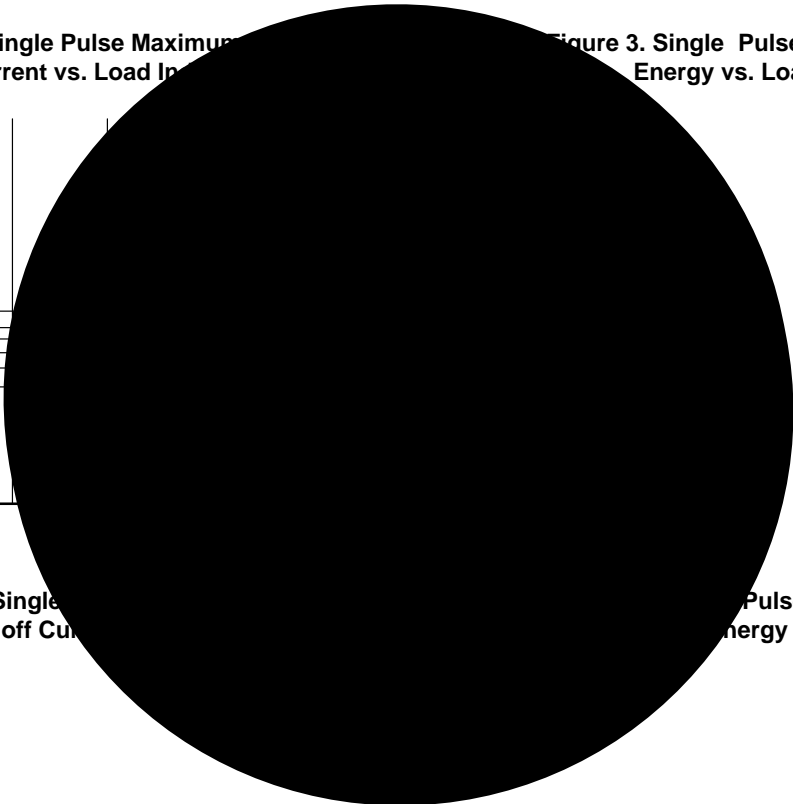


Figure 5. Single Pulse Maximum Inductive Switch off Energy vs. Time in Clamp

NCV8403A, NCV8403B

TYPICAL PERFORMANCE CURVES

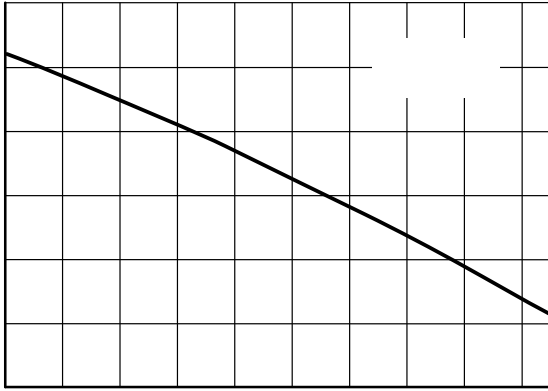


Figure 14. Normalized Threshold Voltage vs. Temperature

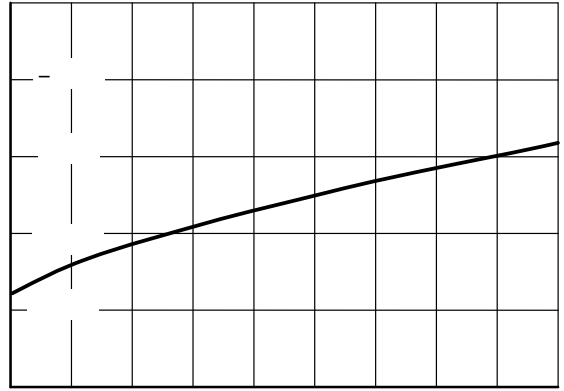


Figure 15. Source Drain Diode Forward Characteristics

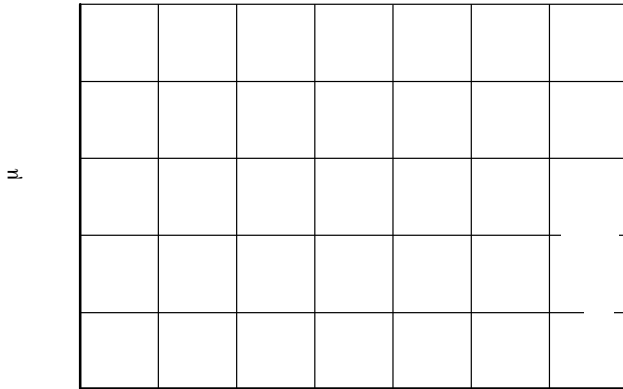


Figure 16. Resistive Load Switching Time vs. Gate Source Voltage

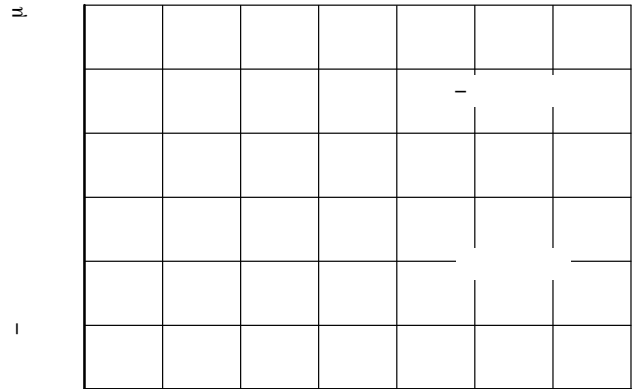


Figure 17. Resistive Load Switching Drain Source Voltage Slope vs. Gate Source Voltage

NCV8403A, NCV8403B

NCV8403A, NCV8403B

TEST CIRCUITS AND WAVEFORMS

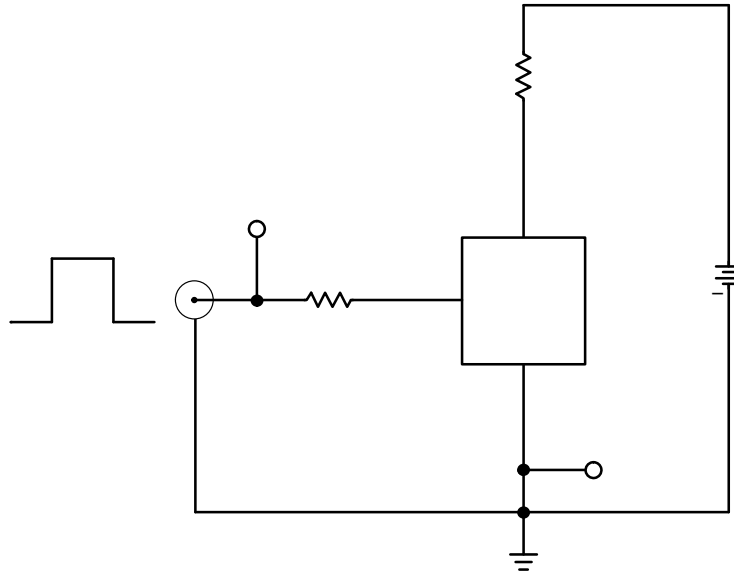


Figure 24. Resistive Load Switching Test Circuit

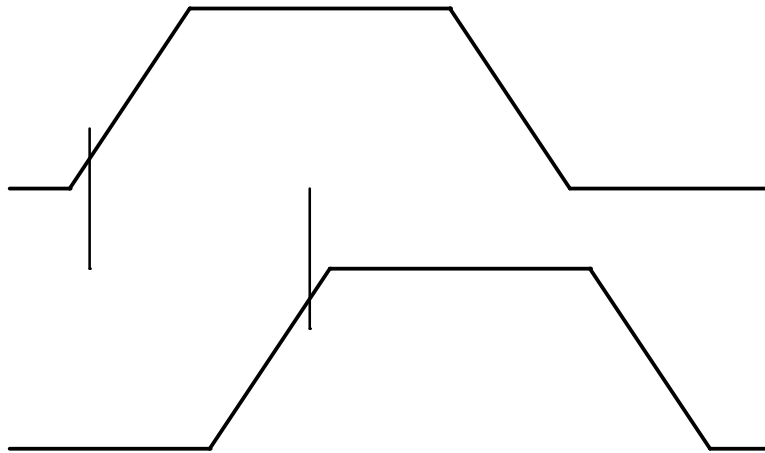


Figure 25. Resistive Load Switching Waveforms

NCV8403A, NCV8403B

ORDERING INFORMATION

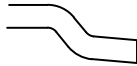
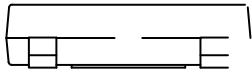
Device	Package	Shipping
	-	
	-	
	-	
	-	



SCALE 1:1

SOT-223 (TO-261)
CASE 318E 04
ISSUE R

DATE 02 OCT 2018



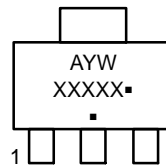
DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.50	1.63	1.75
A1	0.02	0.06	0.10
b			
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	2.30 BSC		

SOT-223 (TO-261)
CASE 318E 04
ISSUE R

DATE 02 OCT 2018

- | | | | | |
|---|--|--|--|--|
| LE 1:
IN 1. BA E
2. C LLEC
3. EMI E
4. C LLEC | LE 2:
IN 1. AN DE
2. CA H DE
3. NC
4. CA H DE | LE 3:
IN 1. GA E
2. DAIN
3. CE
4. DAIN | LE 4:
IN 1. CE
2. DAIN
3. GA E
4. DAIN | LE 5:
IN 1. DAIN
2. GA E
3. CE
4. GA E |
| LE 6:
IN 1. E
2. IN
3.
4. IN | LE 7:
IN 1. AN DE 1
2. CA H DE
3. AN DE 2
4. CA H DE | LE 8:
CANCELLED | LE 9:
IN 1. IN
2. GAND
3. L G
4. GAND | LE 10:
IN 1. CA H DE
2. AN DE
3. GA E
4. AN DE |
| LE 11:
IN 1. M 1
2. M 2
3. GA E
4. M 2 | LE 12:
IN 1. IN
2.
3. NG
4. | LE 13:
IN 1. GA E
2. C LLEC
3. EMI E
4. C LLEC | | |

**GENERIC
MARKING DIAGRAM***




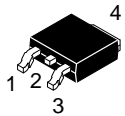
- A = Assembly Location
- Y = Year
- W = Work Week
- XXXXX = Specific Device Code
- = Pb Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

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SCALE 1:1

DPAK (SINGLE GAUGE)
CASE 369C
ISSUE G

DATE 31 MAY 2023

STYLE 1: PIN 1. BASE 2. COLLECTOR 3. EMITTER 4. COLLECTOR	STYLE 2: PIN 1. GATE 2. DRAIN 3. SOURCE 4. DRAIN	STYLE 3: PIN 1. ANODE 2. CATHODE 3. ANODE 4. CATHODE	STYLE 4: PIN 1. CATHODE 2. ANODE 3. GATE 4. ANODE	STYLE 5: PIN 1. GATE 2. ANODE 3. CATHODE 4. ANODE
STYLE 6: PIN 1. MT1 2. MT2 3. GATE 4. MT2	STYLE 7: PIN 1. GATE 2. COLLECTOR 3. EMITTER 4. COLLECTOR	STYLE 8: PIN 1. N/C 2. CATHODE 3. ANODE 4. CATHODE	STYLE 9: PIN 1. ANODE 2. CATHODE 3. RESISTOR ADJUST 4. CATHODE	STYLE 10: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. ANODE

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