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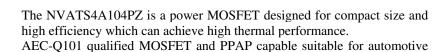
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To learn more about onsemi™, please visit our website at www.onsemi.com

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Power MOSFET -30 V, 8.4 mΩ, -82 A, P-Channel





applications.

- Low On-Resistance
- High Current Capability
- 100% Avalanche Tested
- AEC-Q101 qualified and PPAP capable
- ATPAK package is pin-compatible with DPAK (TO-252)
- Pb-Free, Halogen Free and RoHS compliance

Typical Applications

- Reverse Battery Protection
- Load Switch
- Automotive Front Lighting
- Automotive Body Controllers

SPECIFICATIONS

ABSOLUTE MAXIMUM RATING at Ta = 25°C (Note 1)

Parameter	Symbol	Value	Unit
Drain to Source Voltage	VDSS	-30	V
Gate to Source Voltage	VGSS	±20	V
Drain Current (DC)	ID	-82	Α
Drain Current (Pulse) PW ≤ 10 μs, duty cycle ≤ 1%	IDP	-246	Α
Power Dissipation Tc = 25°C	PD	72	W
Operating Junction and Storage Temperature	Tj, Tstg	–55 to +175	°C
Avalanche Energy (Single Pulse) (Note 2)	EAS	130	mJ
Avalanche Current (Note 3)	lav	-38	Α

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

2 : V_{DD} = -15 V, L = 100 μH , I_{AV} = -38 A

3 : L ≤ 100 μH, Single pulse

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Value	Unit	
Junction to Case Steady State (Tc = 25°C)	R_{θ} JC	2.0	°C/W	
Junction to Ambient (Note 4)	R _θ JA	79.6	°C/W	

Note 4: Surface mounted on FR4 board using a 130 mm², 1 oz. Cu pad.

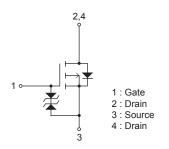


ON Semiconductor®

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VDSS	R _{DS} (on) Max	ID Max
-30 V	8.4 mΩ @ –10 V	00.4
	13.5 mΩ @ -4.5 V	–82 A

ELECTRICAL CONNECTION P-Channel





MARKING



ORDERING INFORMATION

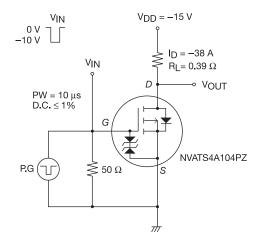
See detailed ordering and shipping information on page 6 of this data sheet.

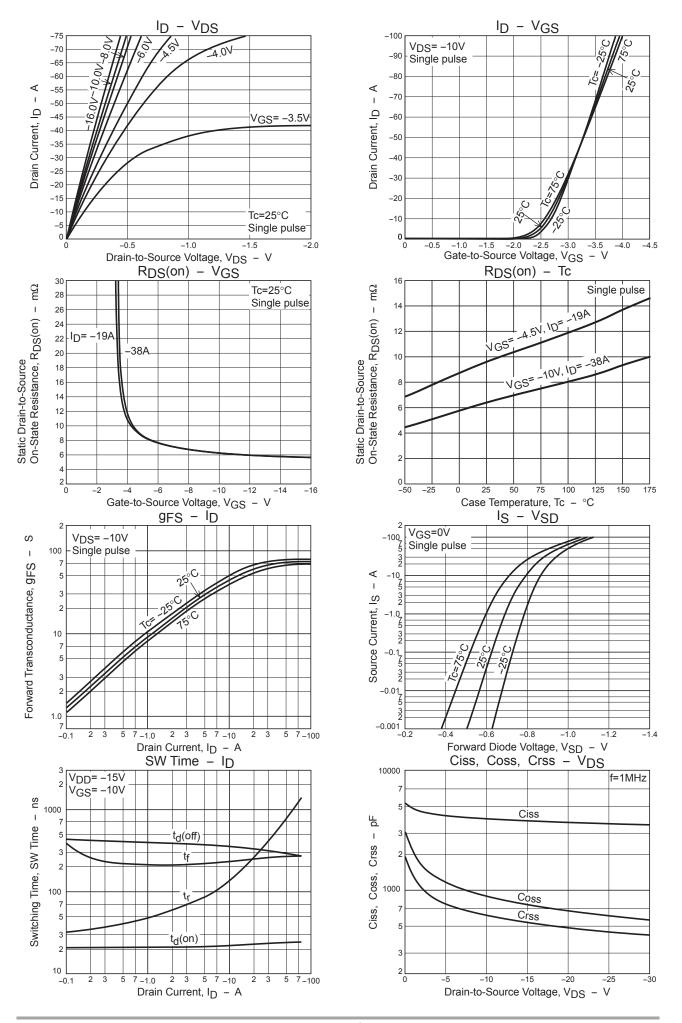
ELECTRICAL CHARACTERISTICS at Ta = 25°C (Note 5)

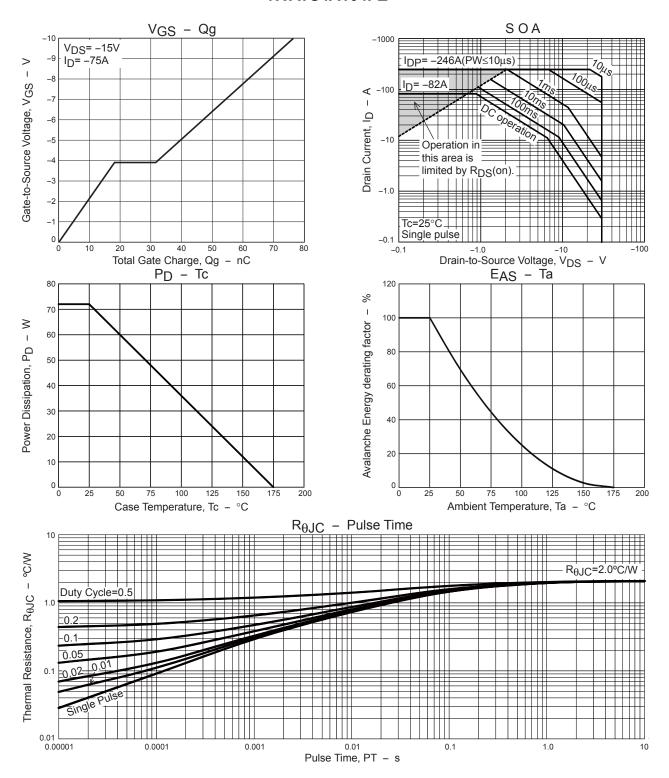
Parameter	Symbol	Conditions	Value			Linit
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source Breakdown Voltage	V(BR)DSS	$I_D = -1 \text{ mA}, V_{GS} = 0 \text{ V}$	-30			V
Zero-Gate Voltage Drain Current	IDSS	$V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}$			-1	μА
Gate to Source Leakage Current	IGSS	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0 \text{ V}$			±10	μА
Gate Threshold Voltage	VGS(th)	$V_{DS} = -10 \text{ V}, I_{D} = -1 \text{ mA}$	-1.2		-2.6	V
Forward Transconductance	gFS .	$V_{DS} = -10 \text{ V}, I_{D} = -38 \text{ A}$		70		S
Static Drain to Source On-State Resistance	R _{DS} (on)1	$I_D = -38 \text{ A}, V_{GS} = -10 \text{ V}$		6.4	8.4	mΩ
	R _{DS} (on)2	I _D = -19 A, V _{GS} = -4.5 V		9.6	13.5	mΩ
Input Capacitance	Ciss			3,950		pF
Output Capacitance	Coss	$V_{DS} = -10 \text{ V, f} = 1 \text{ MHz}$		880		pF
Reverse Transfer Capacitance	Crss			610		pF
Turn-ON Delay Time	t _d (on)			24		ns
Rise Time	tr	See Fig. 1		520		ns
Turn-OFF Delay Time	t _d (off)	See Fig.1		290		ns
Fall Time	tf			260		ns
Total Gate Charge	Qg			76		nC
Gate to Source Charge	Qgs	$V_{DS} = -15 \text{ V}, V_{GS} = -10 \text{ V}, I_{D} = -75 \text{ A}$		18		nC
Gate to Drain "Miller" Charge	Qgd			13		nC
Forward Diode Voltage	V _{SD}	I _S = -75 A, V _{GS} = 0 V		-1.02	-1.5	V

Note 5 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Fig.1 Switching Time Test Circuit





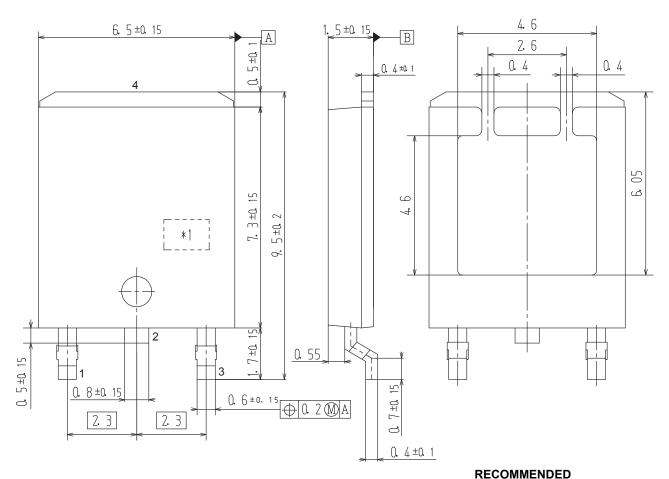


PACKAGE DIMENSIONS

unit: mm

DPAK (Single Gauge) / ATPAK

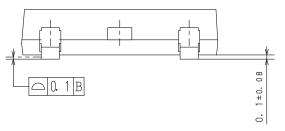
CASE 369AM ISSUE O



1 : Gate 2 : Drain

3 : Source

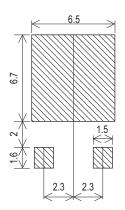
4 : Drain



Pin2 is idle pin with electrical designation only carried

*1:Lot indication

SOLDERING FOOTPRINT



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)
NVATS4A104PZT4G	ATP104	DPAK(Single Gauge) / ATPAK (Pb-Free / Halogen Free)	3,000 / Tape & Reel

[†] 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. http://www.onsemi.com/pub_link/Collateral/BRD8011-D.PDF

Note on usage: Since the NVATS4A104PZ is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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