

## Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Vishay/Siliconix](#)  
[TN0201K-T1-E3](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)



**TN0201K/TN0201KL**  
**Vishay Siliconix**

*New Product*

**N-Channel 20-V (D-S) MOSFET**

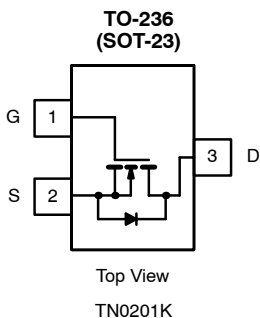
PRODUCT SUMMARY				
V <sub>(BR)DSS</sub> Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(th)</sub> (V)	I <sub>D</sub> (A)	
			TN0201K	TN0201KL
20	1.0 @ V <sub>GS</sub> = 10 V	1.0 to 3.0	0.42	0.64
	1.4 @ V <sub>GS</sub> = 4.5 V		0.35	0.53

**FEATURES**

- TrenchFET® Power MOSFET

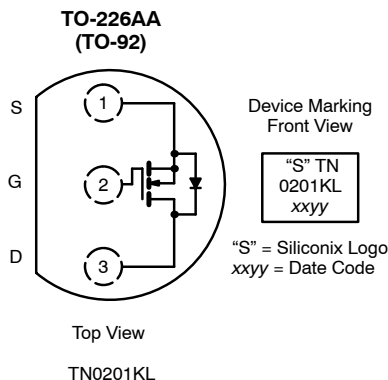
**APPLICATIONS**

- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc.
- Battery Operated Systems
- Solid-State Relays



Marking Code: K3ywl  
 K3 = Part Number Code for TN0201K  
 y = Year Code  
 w = Week Code  
 l = Lot Traceability

Ordering Information: TN0201K-T1—E3 (Lead Free)



Ordering Information: TN0201KL-TR1

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)					
Parameter	Symbol	Limit		Unit	
		TN0201K	TN0201KL		
Drain-Source Voltage	V <sub>DS</sub>	20		V	
Gate-Source Voltage	V <sub>GS</sub>	±20			
Continuous Drain Current (T <sub>J</sub> = 150°C)	I <sub>D</sub>	T <sub>A</sub> = 25°C	0.42	0.64	A
		T <sub>A</sub> = 70°C	0.33	0.51	
Pulsed Drain Current <sup>a</sup>	I <sub>DM</sub>	0.8	1.5		
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> = 25°C	0.35	0.8	W
		T <sub>A</sub> = 70°C	0.22	0.51	
Thermal Resistance, Junction-to-Ambient	R <sub>thJA</sub>	357	156	°C/W	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C	

Notes  
 a. Pulse width limited by maximum junction temperature.



# TN0201K/TN0201KL

Vishay Siliconix

New Product

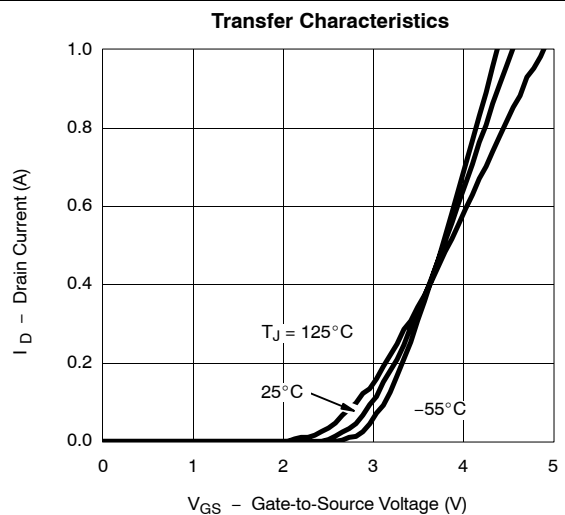
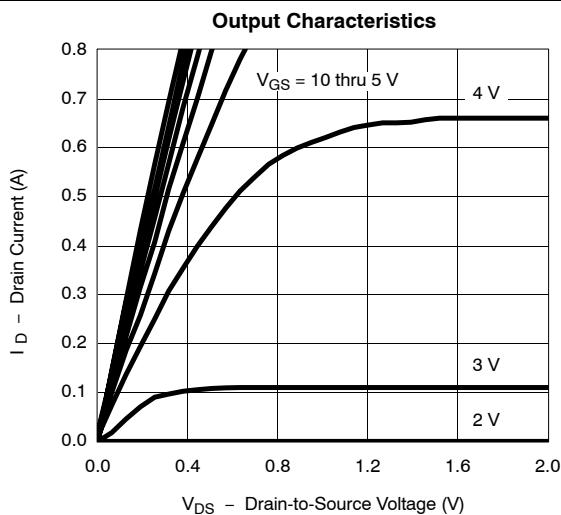
## SPECIFICATIONS (T<sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 10 μA	20			V
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 0.25 mA	1.0	2.0	3.0	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C			10	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 10 V	TN0201K	0.5		A
			TN0201KL	0.8		
Drain-Source On-Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 0.1 A		0.8	1.4	Ω
		V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.3 A		0.47	1.0	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 0.3 A		550		mS
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 0.3 A, V <sub>GS</sub> = 0 V		0.85	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 16 V, V <sub>GS</sub> = 10 V I <sub>D</sub> ≅ 0.3 A		1000	1500	pC
Gate-Source Charge	Q <sub>gs</sub>			205		
Gate-Drain Charge	Q <sub>gd</sub>			200		
Gate Resistance	R <sub>g</sub>			48		Ω
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15 V, R <sub>L</sub> = 50 Ω I <sub>D</sub> ≅ 0.3 A, V <sub>GEN</sub> = 10 V R <sub>G</sub> = 6 Ω		4.5	8	ns
	t <sub>r</sub>			8	15	
Turn-Off Time	t <sub>d(off)</sub>			9	15	
	t <sub>f</sub>			6.3	12	

Notes

- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

## TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

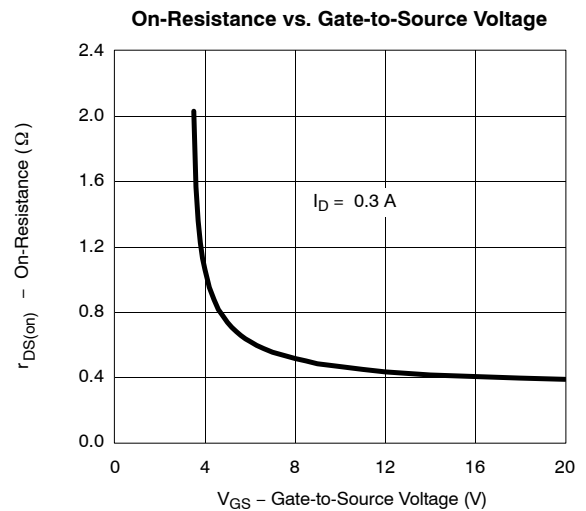
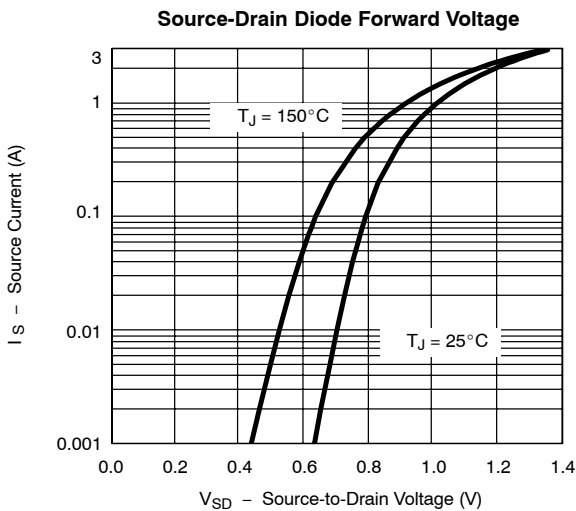
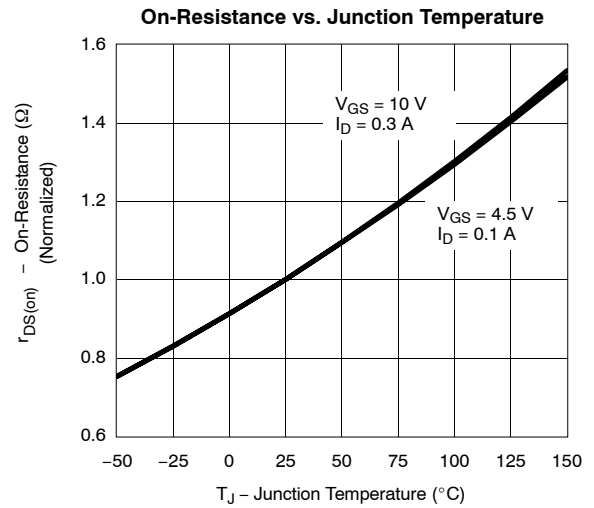
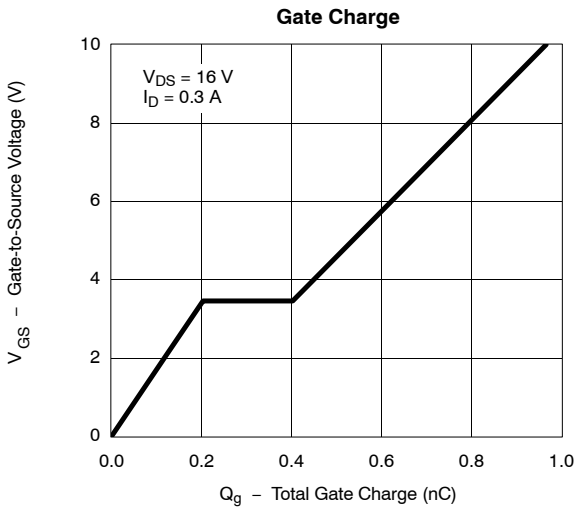
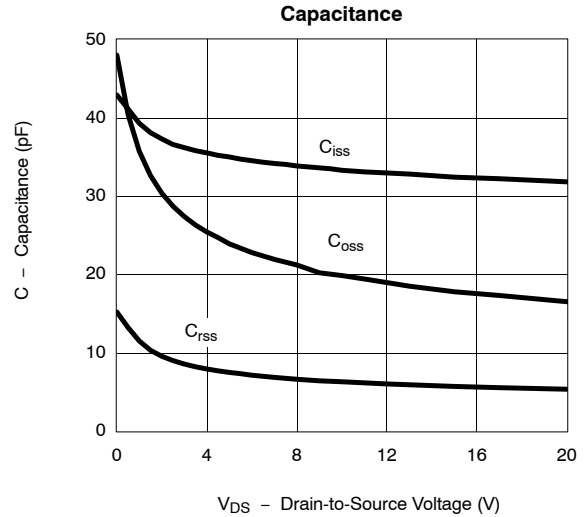
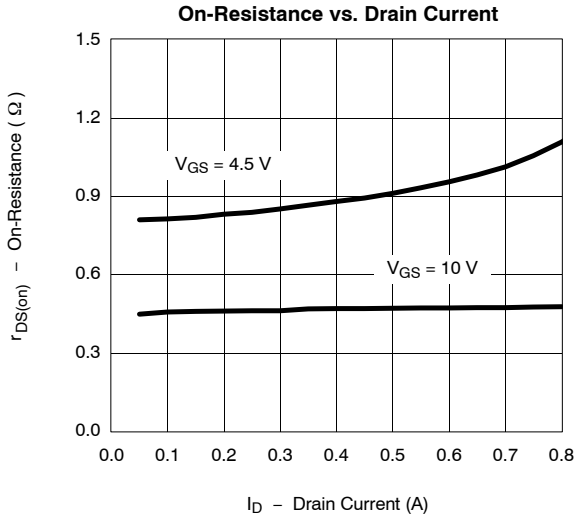




**TN0201K/TN0201KL**  
**Vishay Siliconix**

*New Product*

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**





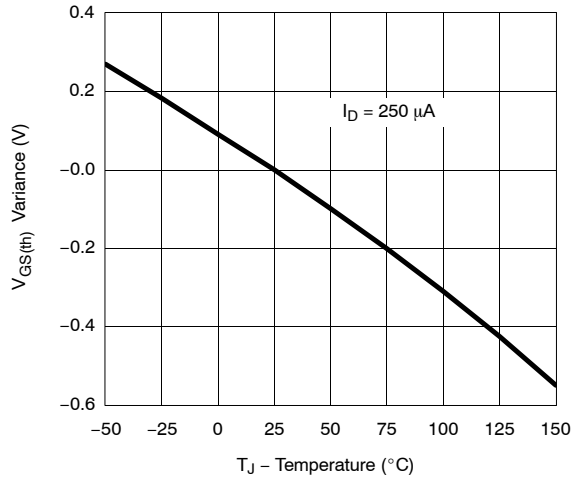
**TN0201K/TN0201KL**

**Vishay Siliconix**

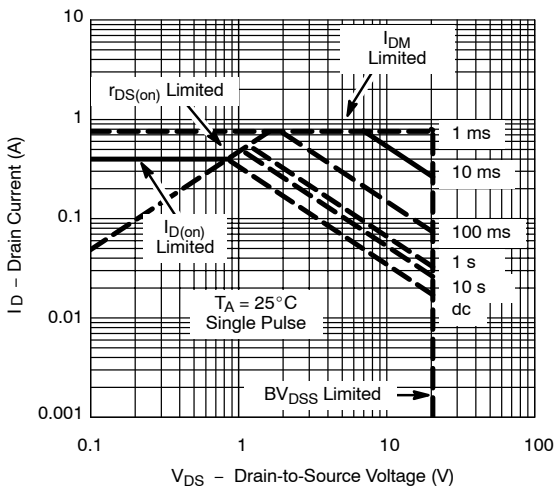
**New Product**

**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

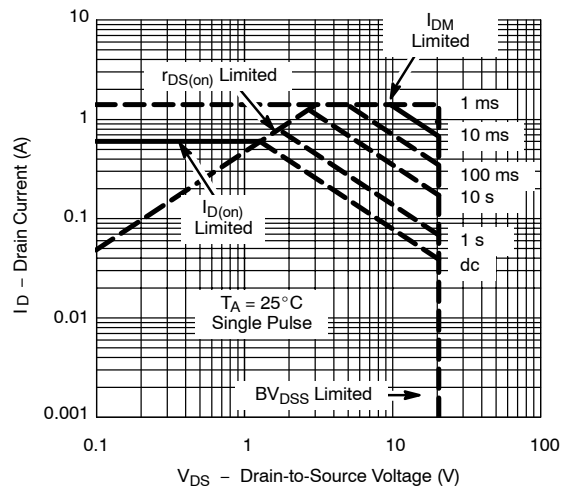
**Threshold Voltage**



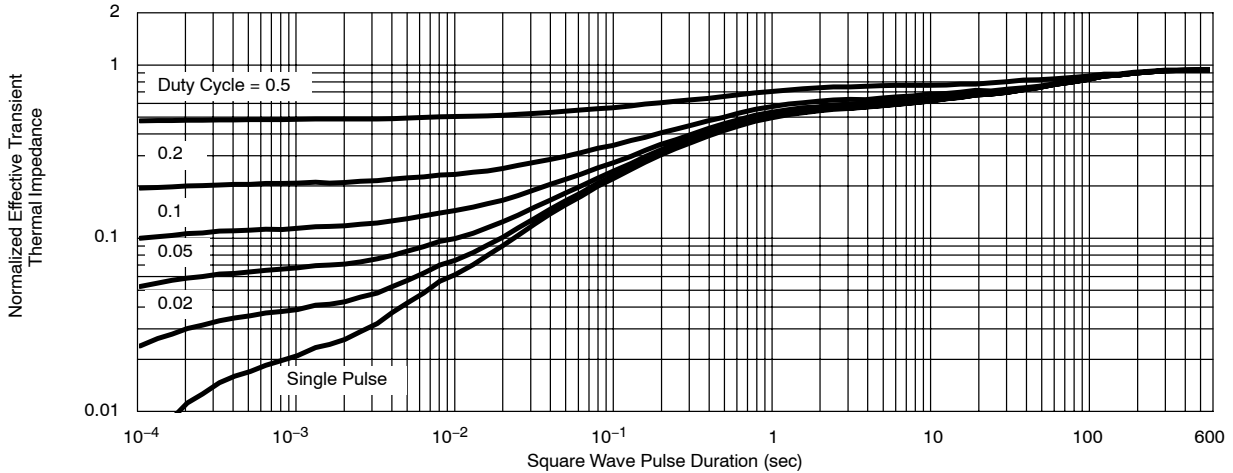
**Safe Operating Area (TO-236, TN0201K Only)**



**Safe Operating Area (TO-226AA, TN0201KL Only)**



**Normalized Thermal Transient Impedance, Junction-to-Ambient (TO-236, TN0201K Only)**



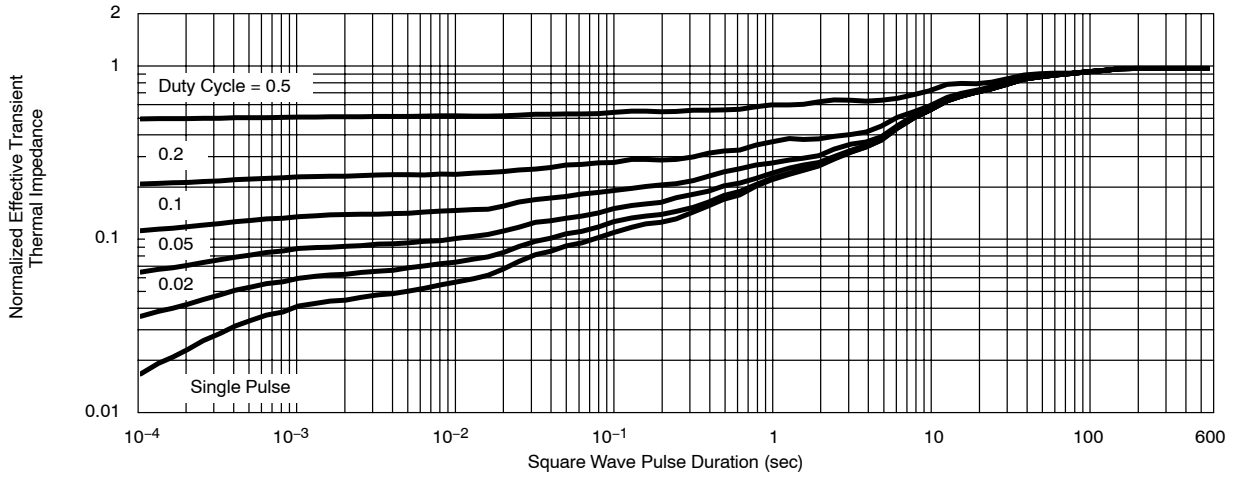


**TN0201K/TN0201KL**  
**Vishay Siliconix**

*New Product*

**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

**Normalized Thermal Transient Impedance, Junction-to-Ambient (TO-226AA, TN0201KL Only)**





## Legal Disclaimer Notice

Vishay

### Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.