

## P-Channel Enhancement Mode MOSFET

### ● DESCRIPTION

The VIC1141DN is the highest performance trench P-ch MOSFET with extreme high cell density, which provide excellent  $R_{ds(on)}$  and gate charge for most of the synchronous buck converter applications.

This device is suitable for use as a load switch or in PWM applications.

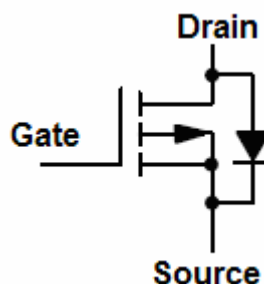
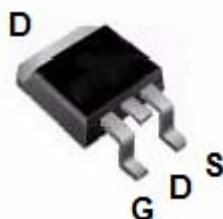
### ● FEATURE

- ◆  $V_{DS} = -40V$ ;  $V_{GS} = \pm 20V$ ;  $I_D = -27A$
- ◆  $R_{DS(ON)} = 25m\Omega$  (TYP.) @  $V_{GS} = -10V$
- ◆  $R_{DS(ON)} = 38m\Omega$  (TYP.) @  $V_{GS} = -4.5V$

### ● APPLICATIONS

- ◆ High Frequency Point-of-load synchronous Buck Converter
- ◆ Networking DC-DC Power System
- ◆ Load/power switch

### ● PIN CONFIGURATION



### ● ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ Unless otherwise noted)

Symbol	Parameter	Rating		Unit
$V_{DS}$	Drain-Source Voltage	-40		V
$V_{GS}$	Gate-Source Voltage	$\pm 20$		
$I_D$	Continuous Drain Current	$V_{GS} = -10V$	-27	A
$I_{DM}$	Pulsed Drain Current	-48		A
$T_J$	Maximum Junction Temperature	-55 to 150		$^\circ C$
$T_{STG}$	Storage Temperature Range	-55 to 150		
$PD$	Maximum Power Dissipation ( $T_a = 25^\circ C$ )	35		W



# VIC1141DN

## ● ELECTRICAL CHARACTERISTICS (TA=25°C Unless otherwise noted)

Symbol	Parameter	Test Conditions	VIC1141DN			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-40	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-32V, V <sub>GS</sub> =0V	--	--	-1	μA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =-250μA	-1.2	-1.5	-2.5	V
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
R <sub>DS(ON) a</sub>	Drain-Source On-state Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-8A	--	25	32	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4A	--	38	46	
g <sub>fs</sub>	Forward Transconductance a	V <sub>DS</sub> =5V, I <sub>D</sub> =-8A	--	11	--	S
<b>Dynamic b</b>						
Q <sub>g</sub>	Total Gate Charge(-4.5V)	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-15V, I <sub>D</sub> =-1A	--	12	--	nC
Q <sub>gs</sub>	Gate-Source Charge		--	3.5	--	
Q <sub>gd</sub>	Gate-Drain Charge		--	3.3	--	
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =-15V, f=1MHz	--	1415	--	pF
C <sub>oss</sub>	Output Capacitance		--	134	--	
C <sub>rss</sub>	Reverse Transfer Capacitance		--	102	--	
<b>SWITCHING CHARACTERISTICS</b>						
t <sub>d(ON)</sub>	Turn-on Delay Time	V <sub>DD</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>DS</sub> =-1A, R <sub>G</sub> =3.3Ω	--	22	--	ns
t <sub>d(OFF)</sub>	Turn-off Delay Time		--	59	--	
<b>DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS</b>						
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	--	--	-27	A
V <sub>SD a</sub>	Diode Forward Voltage	I <sub>S</sub> = -1A, V <sub>GS</sub> = 0V	--	--	-1.2	V

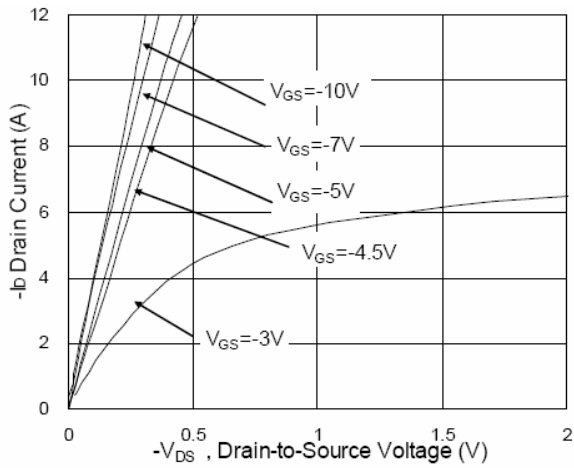
### Notes:

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

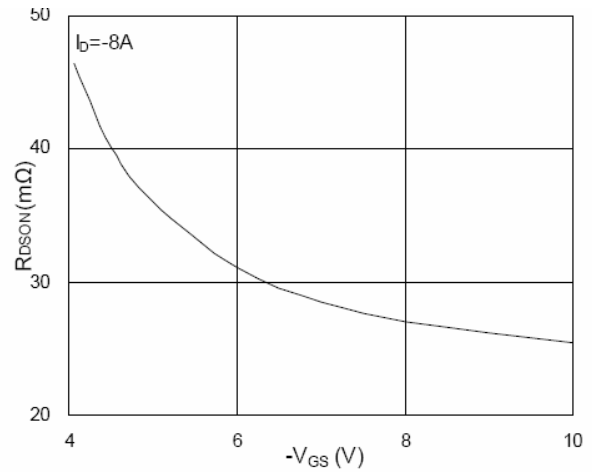
The products and product specifications contained herein are subject to change without notice to improve performance characteristics. consult us, or our representatives before use, to confirm that the information in this datasheet is up to date.

We assume no responsibility for any infringement of patents, patent rights, or other rights arising from the use of any information and circuitry in this datasheet.

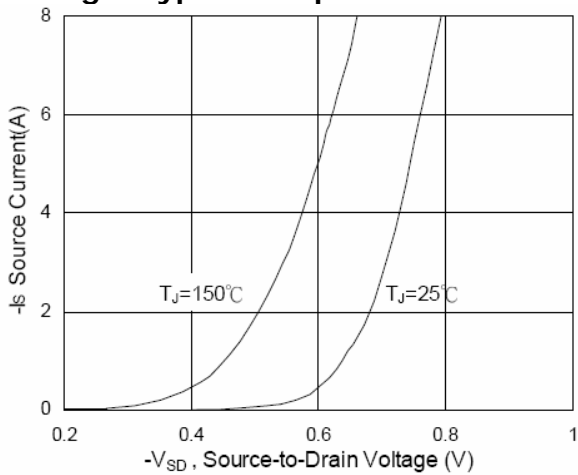
● **TYPICAL CHARACTERISTICS (TA=25°C Unless otherwise noted)**



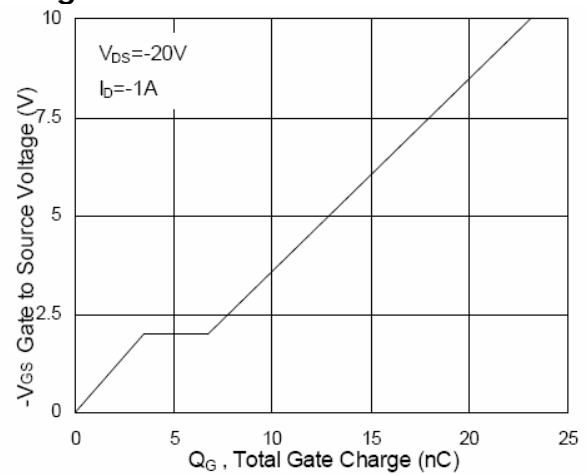
**Fig.1 Typical Output Characteristics**



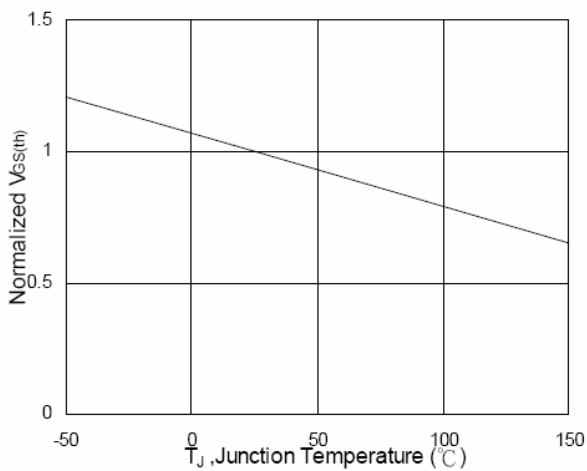
**Fig.2 On-Resistance v.s Gate-Source**



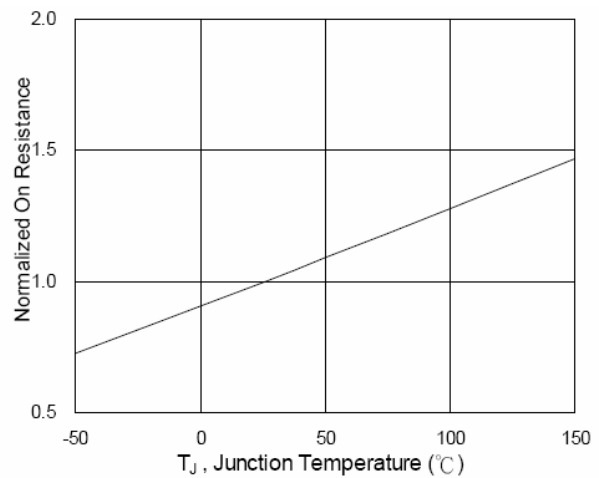
**Fig.3 Forward Characteristics of Reverse**



**Fig.4 Gate Charge Characteristics**

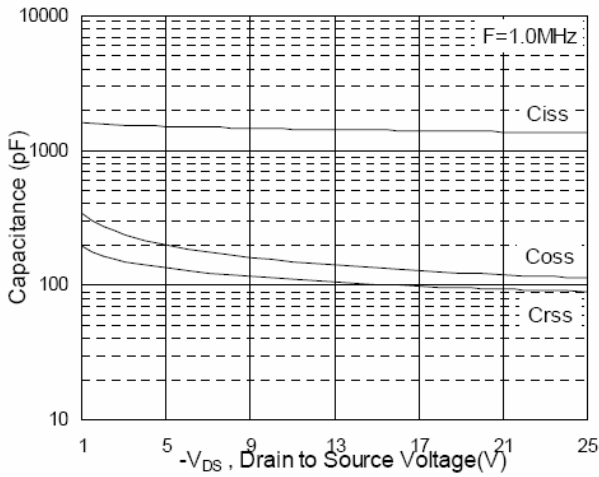


**Fig.5 Normalized  $V_{GS(th)}$  v.s  $T_J$**

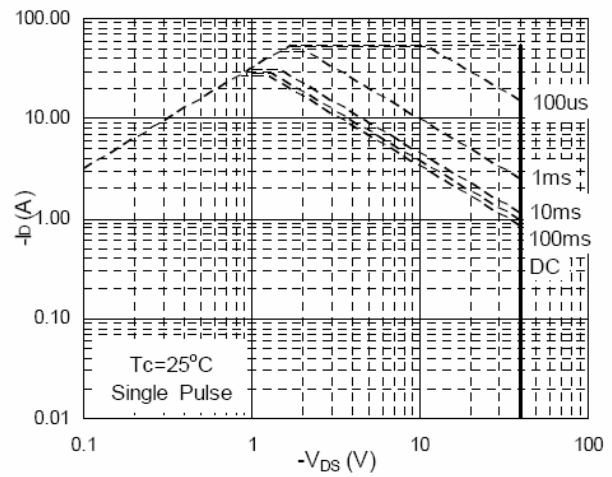


**Fig.6 Normalized  $R_{DS(on)}$  v.s  $T_J$**

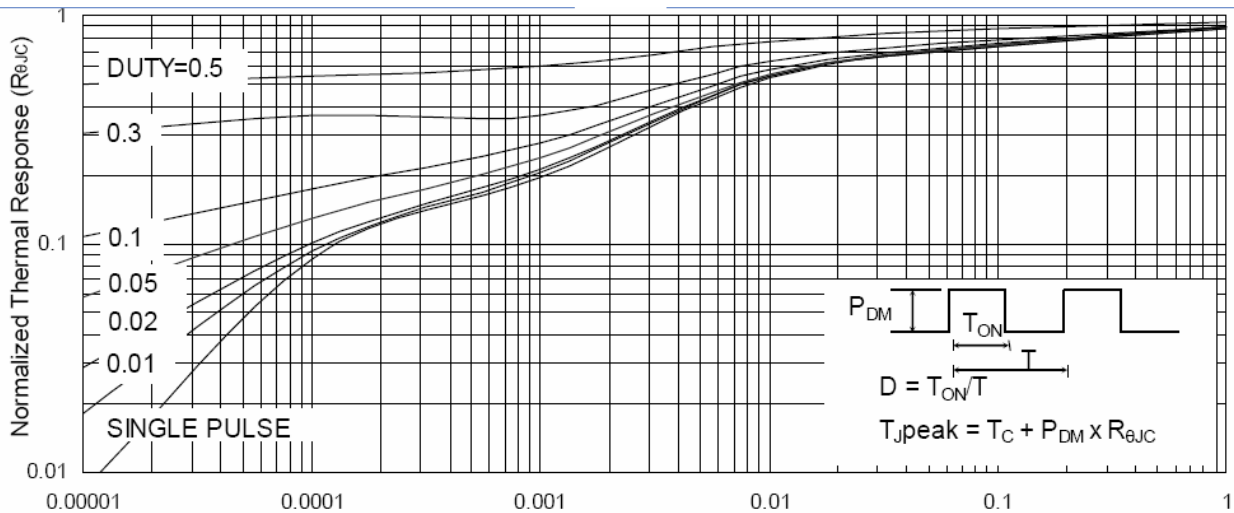
● **TYPICAL CHARACTERISTICS (TA=25°C Unless otherwise noted)**



**Fig.7 Capacitance**



**Fig.8 Safe Operating Area**

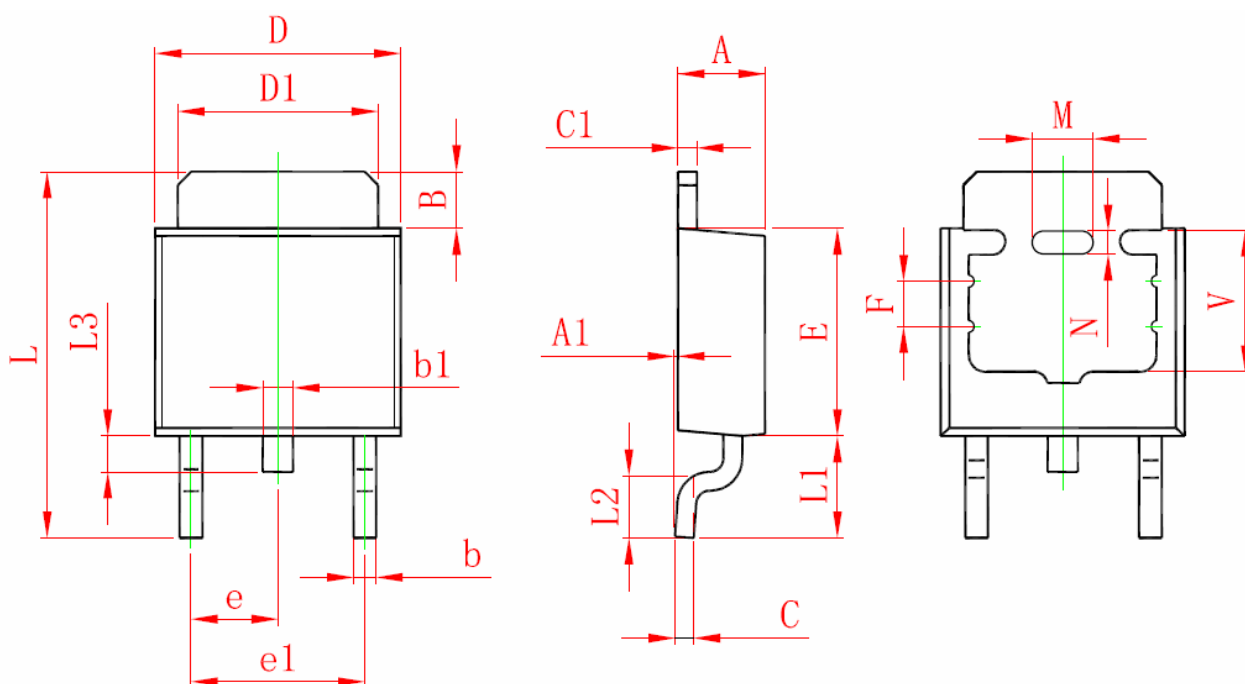


**Fig.9 Normalized Maximum Transient Thermal Impedance**

## ● ORDERING INFORMATION

Part Number	Package code	Shipping
VIC1141DN	DN: TO252	2500/Tape & Reel

## ● PACKAGE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
F	1.200REF.		0.047REF.	
M	1.600REF.		0.063REF.	
N	0.450REF.		0.018REF.	
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.800 REF.		0.150 REF.	

单击下面可查看定价，库存，交付和生命周期等信息

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