

N-Channel Enhancement Mode MOSFET

● DESCRIPTION

The VIC1241DN is the highest performance trench N-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.

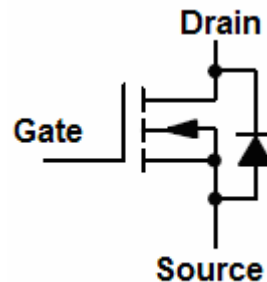
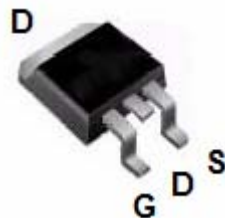
● FEATURE

- ◆ $V_{DS}=40V$; $V_{GS}=\pm 20V$; $I_D=33A$
- ◆ $R_{DS(ON)}=14m\Omega$ (TYP.)@ $V_{GS}=10V$
- ◆ $R_{DS(ON)}=18m\Omega$ (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	± 20		
I_D	Continuous Drain Current	$T_A=25^\circ C$	33	A
I_{DM}	Pulsed Drain Current	60		A
T_J	Maximum Junction Temperature	150		$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150		
PD	Maximum Power Dissipation ($T_A=25^\circ C$)	35		W



VIC1241DN

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

Symbol	Parameter	Test Conditions	VIC1241DN			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	40	--	--	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =32V, V _{GS} =0V	--	--	1	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.5	V
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
R _{DS(ON)} a	Drain-Source On-state Resistance	V _{GS} =10V, I _D =15A	--	14	18	mΩ
		V _{GS} =4.5V, I _D =8A	--	18	23	
g _{fs}	Forward Transconductance a	V _{ds} =5V, I _d =15A	--	35	--	S
Dynamic b						
Q _g	Total Gate Charge(4.5V)	V _{GS} =4.5V, V _{DS} =32V, I _d =15A	--	11	15	nC
Q _{gs}	Gate-Source Charge		--	2.65	3.7	
Q _{gd}	Gate-Drain Charge		--	4.9	6.8	
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, f=1MHz	--	1023	1428	pF
C _{oss}	Output Capacitance		--	108	152	
C _{rss}	Reverse Transfer Capacitance		--	78	108	
SWITCHING CHARACTERISTICS						
t _{d(ON)}	Turn-on Delay Time	V _{DD} =20V, V _{GS} =10V, I _{DS} =15A, R _G =3.3Ω	--	2.9	5.8	ns
t _{d(OFF)}	Turn-off Delay Time		--	21.4	43	
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I _s	Continuous Source Current	V _g =V _d =0V, Force Current	--	--	33	A
V _{sd} a	Diode Forward Voltage	I _s = 1A, V _{GS} = 0V	--	--	1.2	V

Notes:

- a. Pulse test; pulse width ≤ 300us, 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)**

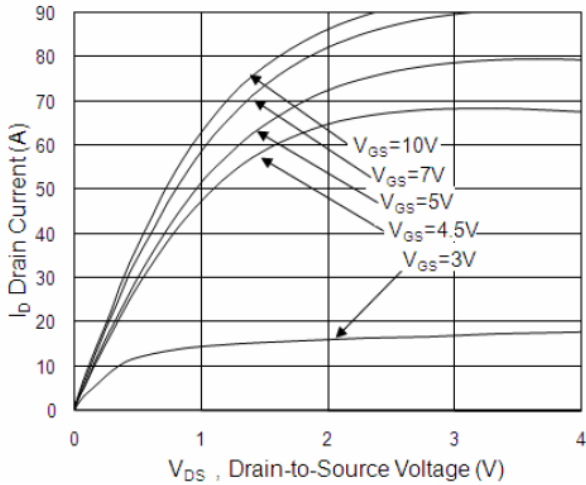


Fig.1 Typical Output Characteristics

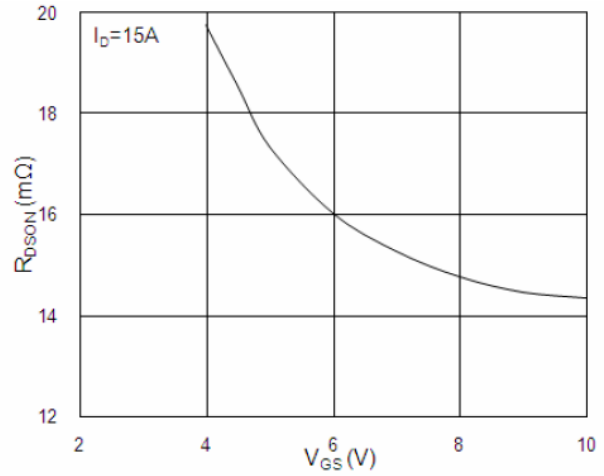


Fig.2 On-Resistance v.s Gate-Source

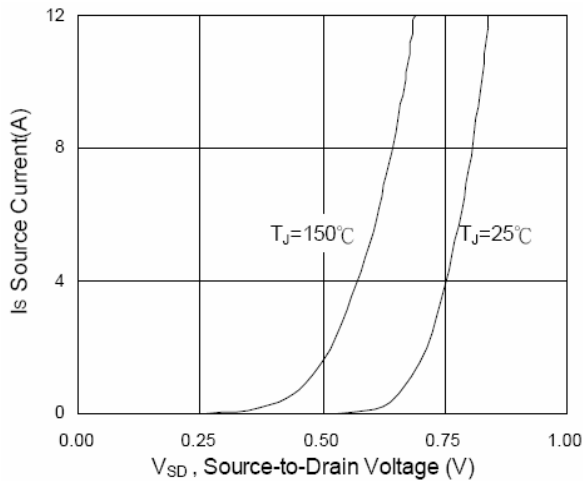


Fig.3 Forward Characteristics of Reverse

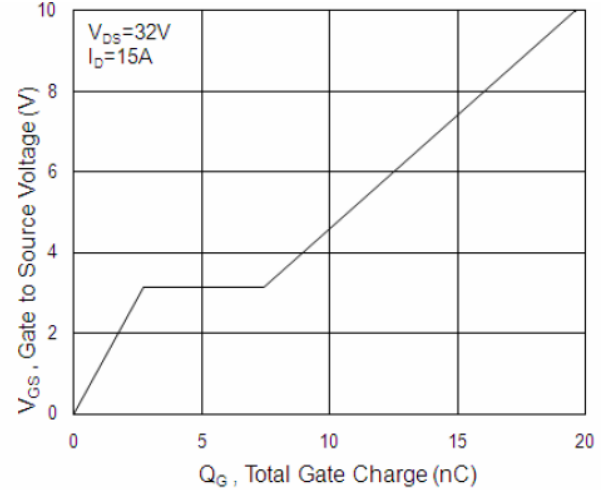


Fig.4 Gate-Charge Characteristics

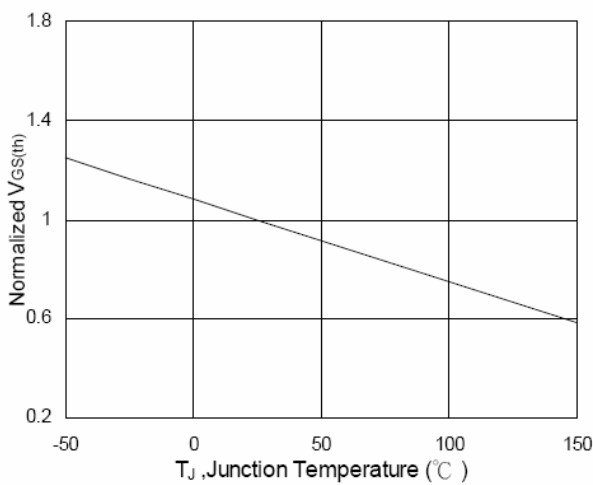


Fig.5 Normalized Vgs(th) v.s TJ

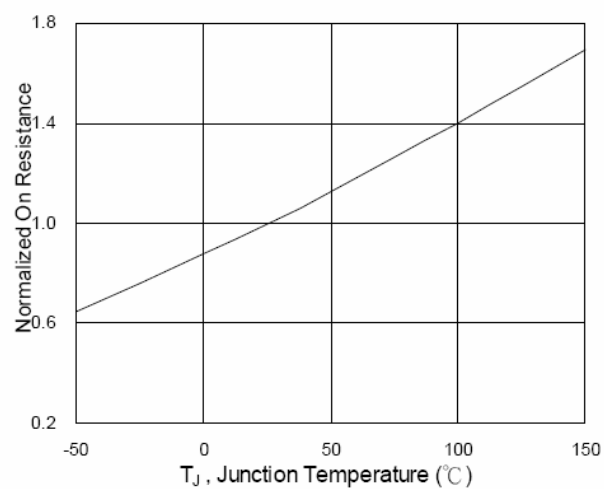


Fig.6 Normalized Rds(on) v.s TJ

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

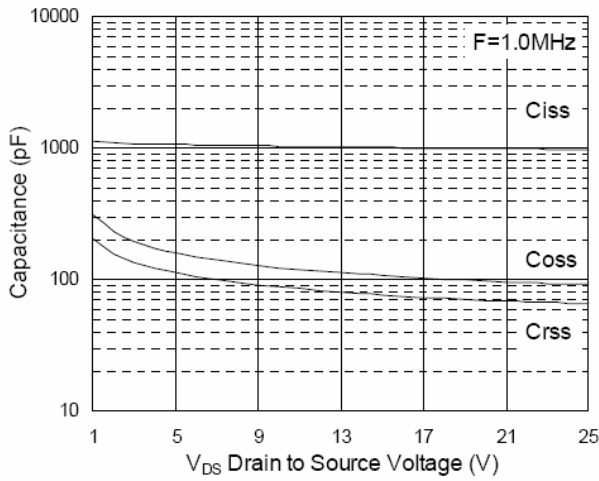


Fig.7 Capacitance

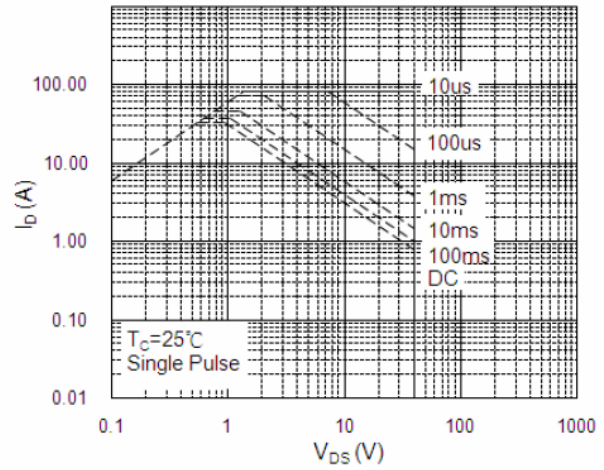


Fig.8 Safe Operating Area

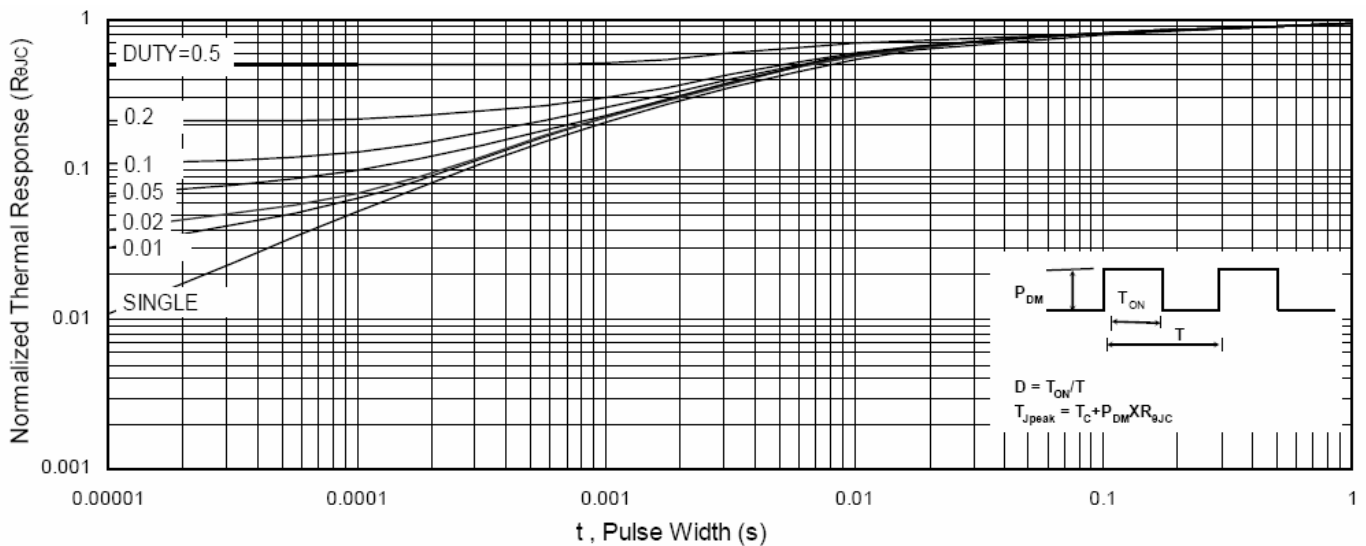
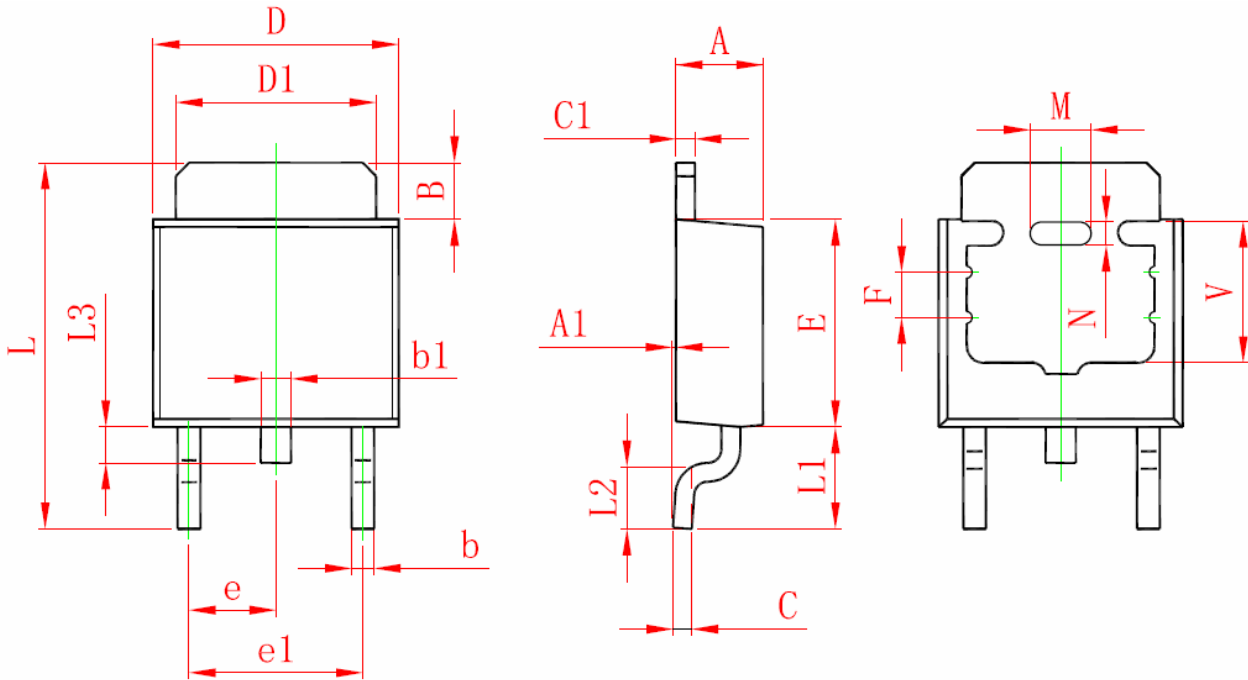


Fig.9 Normalized Maximum Transient Thermal Impedance

● ORDERING INFORMATION

Part Number	Package code	Shipping
VIC1241DN	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	1.200 REF.		0.047 REF.	
M	1.600 REF.		0.063 REF.	
N	0.450 REF.		0.018 REF.	
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

[>>VIC\(微科\)](#)