

Description

The TN2216 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It can be used in a wide variety of applications.

General Features

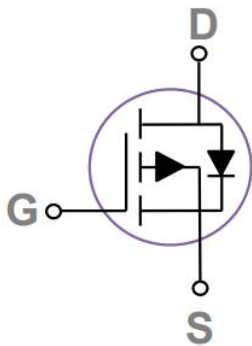
$$V_{DS} = -20V$$

$$I_D = -16A$$

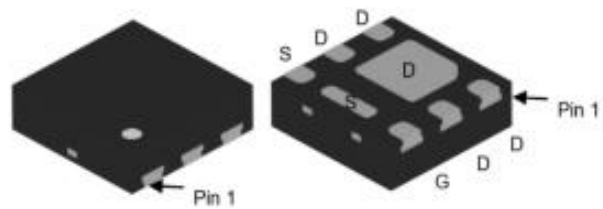
$$R_{DS(ON)} : 12.5m\Omega \text{ (Typ.) @ } V_{GS} = -4.5V$$

$$R_{DS(ON)} : 16.1m\Omega \text{ (Typ.) @ } V_{GS} = -2.5V$$

Schematic diagram



DFN-6-EP(2x2) Pin Assignment



Top View

Bottom View

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 12	V
Drain Current-Continuous	$T_A = 25^\circ C$	I_D	-16	A
	$T_A = 100^\circ C$		-10	A
Pulsed Drain Current ^(Note 1)		I_{DM}	-30	A
Maximum Power Dissipation		P_D	2.3	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{th JA}$	49	°C/W
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Electrical Characteristics (TA=25°C unless otherwise noted)

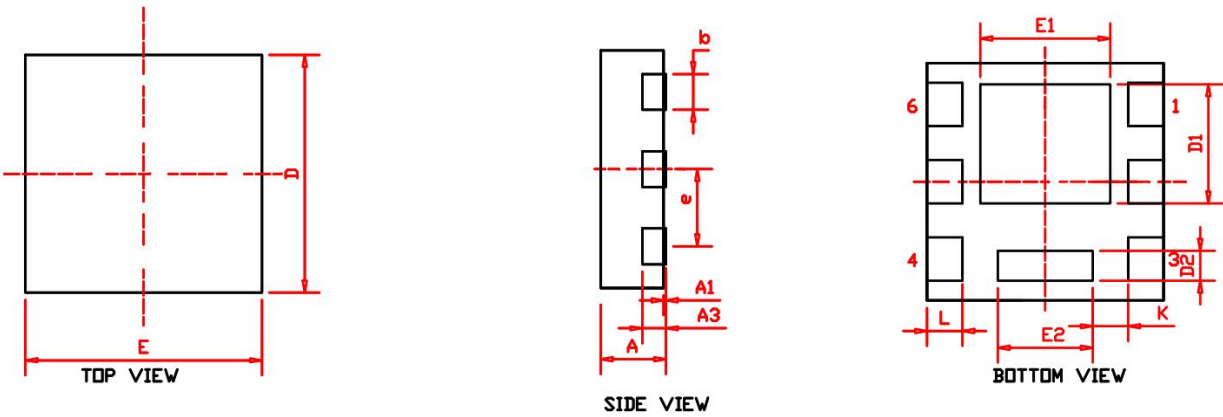
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	-1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	± 100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	-0.4	-0.68	-1.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =-8A	-	12.5	17.3	mΩ
		V _{GS} =2.5V, I _D =-5A	-	16.1	23	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-5A	-	5	-	S
Dynamic Characteristics ^(Note 4)						
Input Capacitance	C _{ISS}	V _{DS} =-6V V _{GS} =0V f=1.0MHz	-	1280	-	pF
Output Capacitance	C _{OSS}		-	300	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	280	-	pF
Switching Characteristics						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -10V R _L = 10 Ω I _D = -2.8A, V _{GEN} = -4.5V R _G = 6 Ω	-	15	-	ns
Rise Time	tr		-	60	-	ns
Turn-Off Delay Time	t _{D(OFF)}		-	70	-	ns
Fall Time	tf		-	65	-	ns
Total Gate Charge	Q _g	V _{DS} =-10V,I _D =-5A, V _{GS} =-4.5V	-	14	-	nC
Gate-Source Charge	Q _{gs}		-	3	-	nC
Gate-Drain Charge	Q _{gd}		-	3.5	-	nC
Drain-Source Diode Characteristics ^(Note 3)						
Diode forward voltage	V _{SD}	V _{GS} =0V,I _S =-1.25A		-0.72	-1.2	V

Notes

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10sec$.
3. Pulse Test: PulseWidth $\leq 300\mu S$, Duty Cycle $\leq 2\%$
4. Guaranteed by design, not subject to production testing.

Package Information

DFN2X2-6



PACKAGE TYPE			
SYMBOLS	MIN	NOM	MAX
A	0.60	-	0.80
A1	0.000	0.02	0.050
A3	0.203 REF		
b	0.30	0.35	0.40
D	1.924	2.0	2.076
E	1.924	2.0	2.076
e	0.650 TYP		
L	0.224	0.30	0.376
K	0.20	-	-
E1	1.00	1.10	1.20
D1	0.90	1.00	1.10
E2	0.50	0.70	0.90
D2	0.20	0.30	0.35