JTD2216

P-Channel Enhancement Mode Power MOSFET

Description

The JTD2216 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

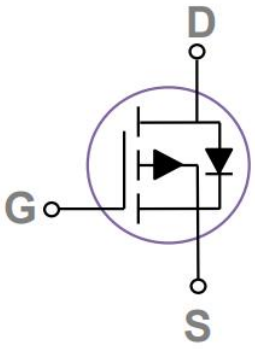
V_{DS} =-20V

I_D =-16A

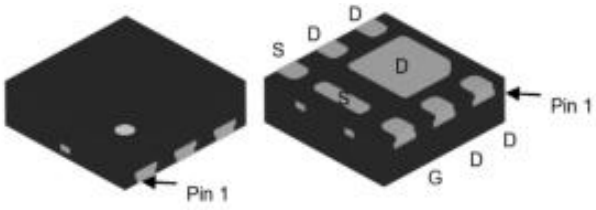
$R_{DS(ON)}$: 12.5mΩ (Typ.) @V_{GS}=-4.5V

$R_{DS(ON)}$: 16.1mΩ (Typ.) @V_{GS}=-2.5V

Schematic diagram



SOT23-3 Pin Assignment



Top View Bottom View

Absolute Maximum Ratings (TA=25℃ 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℃	I_D	-16	A
	T_A=100℃		-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	℃

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{th\ JA}$	49	^{0}C/W

Electrical Characteristics (TA=25℃ 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 = 10Ω I_D = -2.8A, V_{GEN} = -4.5V R_G = 6Ω	-	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	Qgd		-	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.

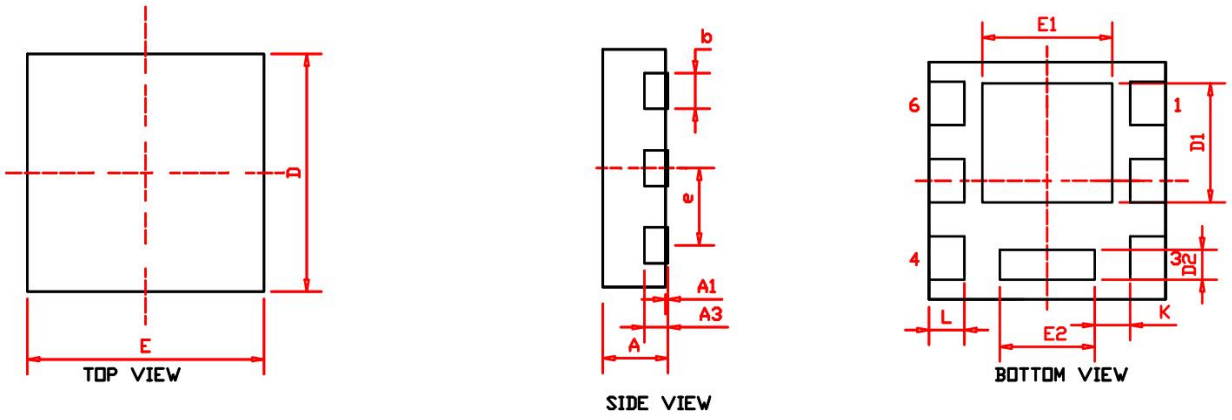
2. Surface Mounted on FR4 Board, t≦10sec.

3. Pulse Test: PulseWidth≦300uS, Duty Cycle≦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	0224	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