

Description

CT2N12436C uses advanced power trench technology that has been especially tailored to minimize the on-state resistance. This device is suitable for uni-directional or bidirectional load switch, facilitated by its common-drain configuration.

Features

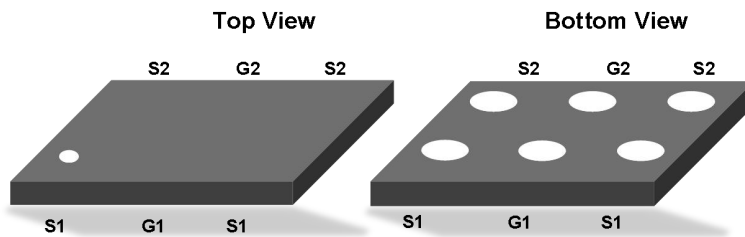
- CSP(Chip Size Package)
- Super High Dense Cell for Low $R_{SS(ON)}$
- RoHS Compliant and Halogen-Free
- ESD Protected

Applications

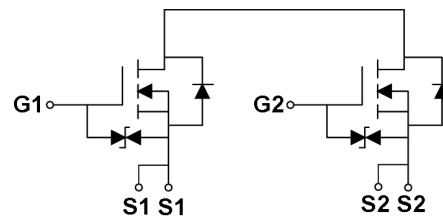
- Battery Protection
- Load Switch

$V_{SSS}(V)$	$I_S(A)$	$R_{SS(on)}TYP (m\Omega)$
12	8.1	4.3 @VGS=4.5V
		4.5 @VGS=3.8V
		5.4 @VGS=3.1V
		6.4 @VGS=2.5V

Schematic & PIN Configuration



CSP2.14*1.67-6L



Device Symbol

Absolute Maximum Ratings($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Source -Source Voltage		V_{SSS}	12	V
Gate-Source Voltage		V_{GSS}	± 10	V
Continuous Source Current	DC ¹	I_{S1}	8.1	A
	DC ²	I_{S2}	16.9	A
Pulsed Source Current ³		I_{SP}	80	A
Total Power Dissipation	DC ¹	P_{D1}	0.43	W
	DC ²	P_{D2}	2	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$
Maximum Junction-to-Ambient	DC ¹	$R_{\theta JA1}$	290	$^{\circ}\text{C/W}$
	DC ²	$R_{\theta JA2}$	62.5	$^{\circ}\text{C/W}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Source-Source Breakdown Voltage	V _{SSS}	V _{GS} = 0V, I _S = 250μA	12	-	-	V
Zero Gate Voltage Source Current	I _{SSS}	V _{SS} = 12V, V _{GS} = 0V	-	-	1	μA
Gate-body Leakage Current	I _{GSS}	V _{SS} = 0V, V _{GS} = ±8V	-	-	±10	μA
		V _{SS} = 0V, V _{GS} = ±5V	-	-	±1	
Gate-Threshold Voltage	V _{GS(off)}	V _{SS} = 10V, I _S = 250μA	0.4	0.9	1.3	V
Source-Source on-Resistance	R _{SS(on)}	V _{GS} = 4.5V, I _S = 4A	3.0	4.3	5.5	mΩ
		V _{GS} = 3.8V, I _S = 4A	3.2	4.5	6.5	
		V _{GS} = 3.1V, I _S = 4A	3.5	5.4	7.9	
		V _{GS} = 2.5V, I _S = 4A	3.8	6.4	10.3	
Forward Transconductance	y _{gfs}	V _{SS} = 5V, I _S = 4A	-	7.5	-	S
Dynamic Characteristics ¹						
Input Capacitance	C _{iss}	V _{SS} = 10V, V _{GS} =0V, f =1MHz	-	2720	-	pF
Output Capacitance	C _{oss}		-	408	-	
Reverse Transfer Capacitance	C _{rss}		-	345	-	
Switching Characteristics						
Total Gate Charge ¹	Q _g	V _{GS} = 4.5V, V _{SS} = 10V, I _S = 4A	-	35	-	nC
Turn-on Delay Time ^{1,2}	t _{d(on)}	V _{GS} = 4.5V,, V _{SS} = 10V, I _S = 4A	-	4.4	-	μs
Rise Time ^{1,2}	t _r		-	6.2	-	
Turn-off Delay Time ^{1,2}	t _{d(off)}		-	13.7	-	
Fall Time ^{1,2}	t _f		-	9	-	
Drain-Source Diode Characteristics						
Forward Source to Source Voltage	V _{F(S-S)}	I _S = 4A, V _{GS} = 0V	-	-	1.2	V

Notes:

- Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) using the minimum recommended pad size (36 μm Copper).
- Mounted on Ceramic substrate (70mm x 70mm x t1.0mm)
- $t = 10\mu s$, duty cycle $\leq 1\%$.

Typical Characteristics

Typical Characteristics

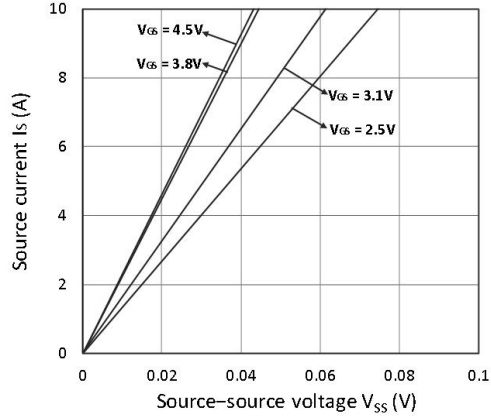


Figure 1. Output Characteristics

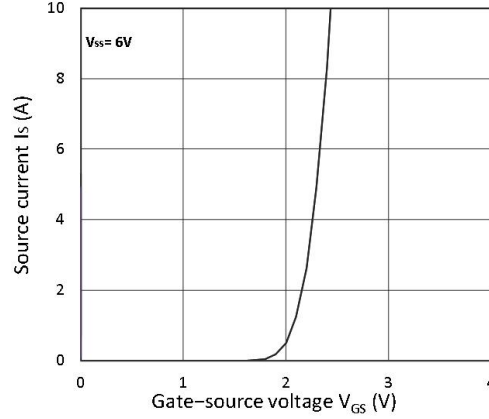


Figure 2. Transfer Characteristics

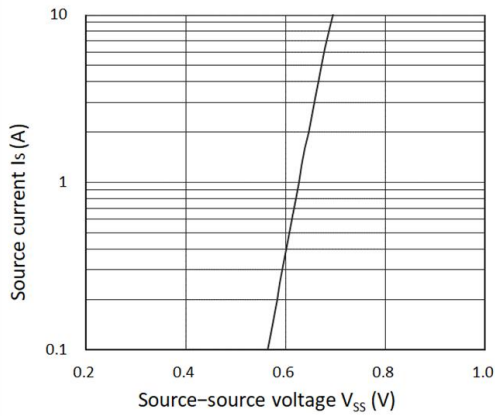


Figure 3. Forward Characteristics of Reverse

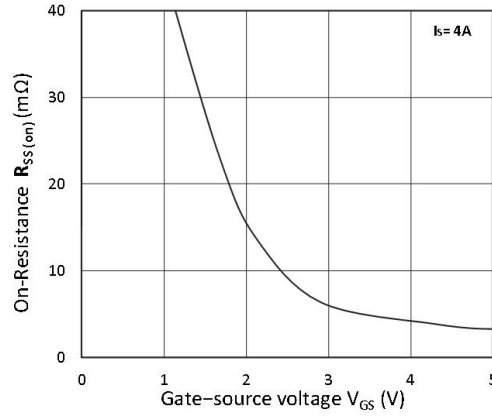


Figure 4. $R_{SS(ON)}$ vs. V_{GS}

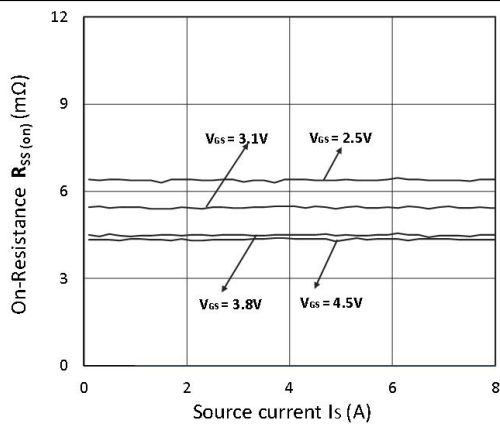


Figure 5. $R_{SS(ON)}$ vs. I_S

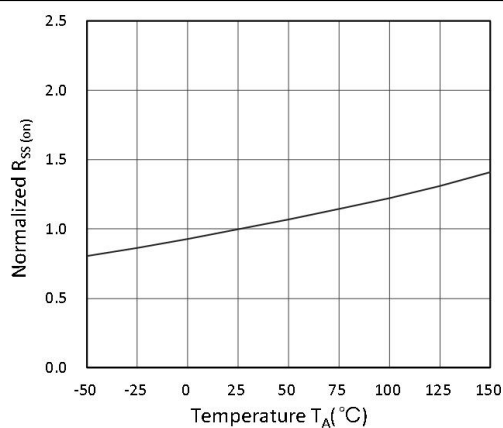
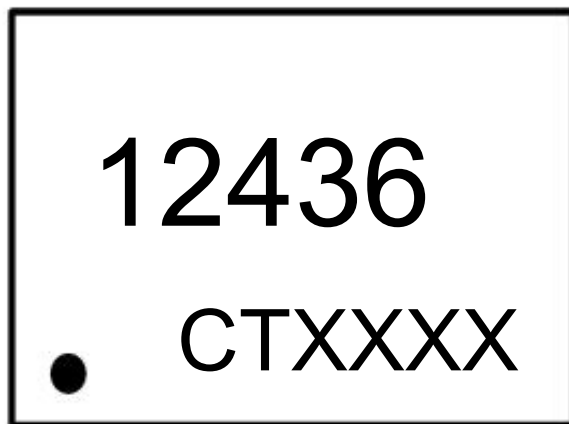


Figure 6. Normalized $R_{SS(ON)}$ vs. Temperature

Marking Instructions



Note:

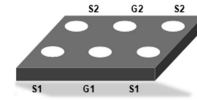
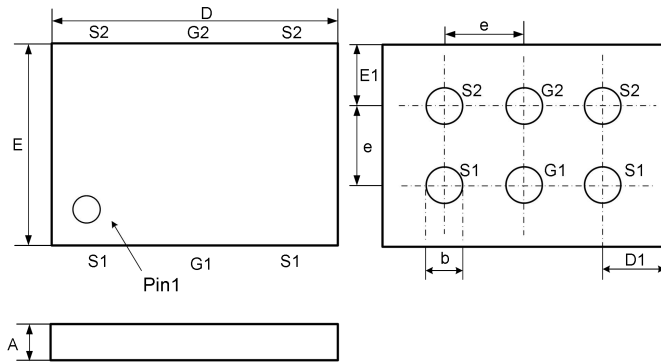
12436: Device code.

CTXXXX: Date code

Package Information

Part Number	Package Type	Package Qty / Reel
CT2N12436C	CSP2.14*1.67-6L	8000

Package Outline Dimensions



CSP2.14*1.67-6L

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	2.10	2.14	2.17
D1	0.39	0.42	0.45
E	1.63	1.67	1.71
E1	0.48	0.51	0.54
e	0.65 BSC		
b	0.27	0.30	0.33
A	0.09	0.11	0.15