



### CST3410L N-Ch 30V Fast Switching MOSFETs

- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology

#### CST3410L Product Summary



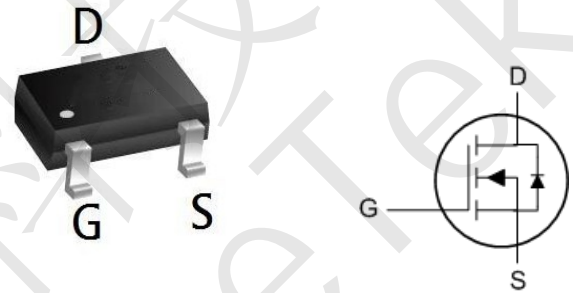
BVDSS	RDSON	ID
30V	12mΩ	7.0A

#### CST3410L Description

The CST3410L is the high cell density trenched N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The CST3410L meet the RoHS and Green Product requirement with full function reliability approved.

#### CST3410L SOT23-3L Pin Configuration



#### CST3410L Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	7.0	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	5.5	A
$I_{DM}$	Pulsed Drain Current <sup>2</sup>	29.4	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation <sup>3</sup>	2.0	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

#### CST3410L Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient <sup>1</sup>	---	85	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case <sup>1</sup>	---	---	$^\circ\text{C/W}$



#### CST3410L Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V,	-	-	1.0	μA
I <sub>GSS</sub>	Gate to Body Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V	-	-	±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	1.5	2.5	V
R <sub>DS(on)</sub>	Static Drain-Source on-Resistance note3	V <sub>GS</sub> =10V, I <sub>D</sub> =10A	-	12	17	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A	-	17	25	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1.0MHz	-	614	-	pF
C <sub>oss</sub>	Output Capacitance		-	118	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	98	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, I <sub>D</sub> =11A, V <sub>GS</sub> =10V	-	16	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	2.7	-	nC
Q <sub>gd</sub>	Gate-Drain("Miller") Charge		-	4.5	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> =15V, R <sub>L</sub> =1.35Ω, R <sub>GEN</sub> =3Ω, V <sub>GS</sub> =10V	-	6	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	10	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time		-	30	-	ns
t <sub>f</sub>	Turn-off Fall Time		-	6.5	-	ns
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	7	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	30	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =15A	-	-	1.2	V
t <sub>rr</sub>	Body Diode Reverse Recovery Time	I <sub>F</sub> =11A, di/dt=500A/μs	-	7	-	ns
Q <sub>rr</sub>	Body Diode Reverse Recovery Charge		T <sub>J</sub> =25°C	-	10	-

#### CST3410L Diode Characteristics

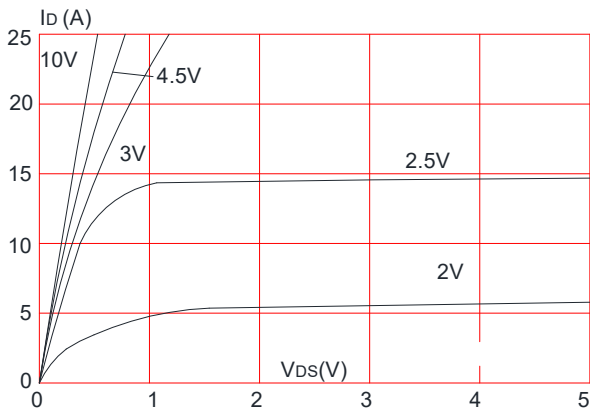
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current <sup>1,5</sup>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	7	A
V <sub>SD</sub>	Diode Forward Voltage <sup>2</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A, T <sub>J</sub> =25°C	---	---	1	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =8A, di/dt=100A/μs,	---	8	---	nS
Q <sub>rr</sub>	Reverse Recovery Charge	T <sub>J</sub> =25°C	---	2.9	---	nC

Note :

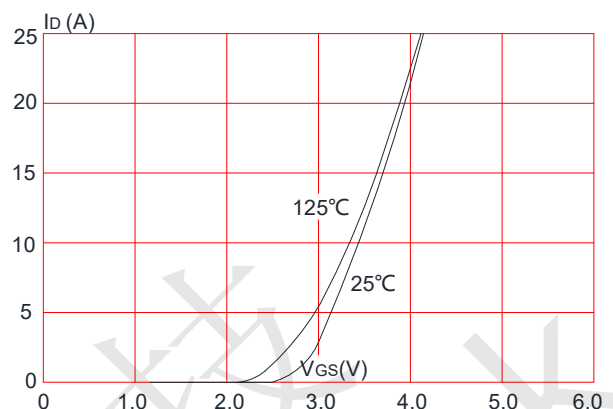


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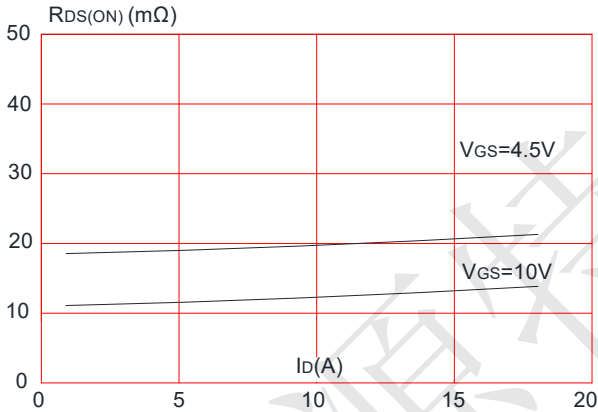
**Figure 1: Output Characteristics**



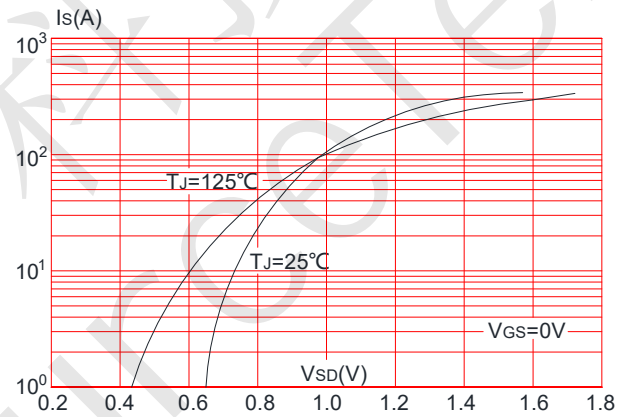
**Figure 2: Typical Transfer Characteristics**



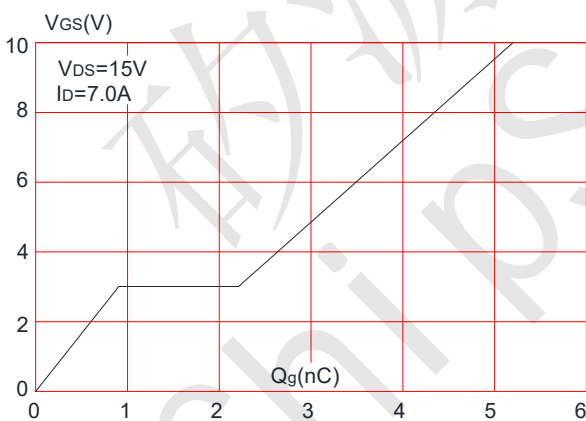
**Figure 3: On-resistance vs. Drain Current**



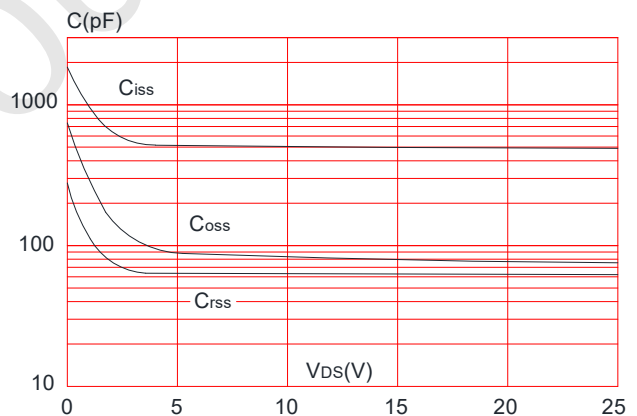
**Figure 4: Body Diode Characteristics**



**Figure 5: Gate Charge Characteristics**



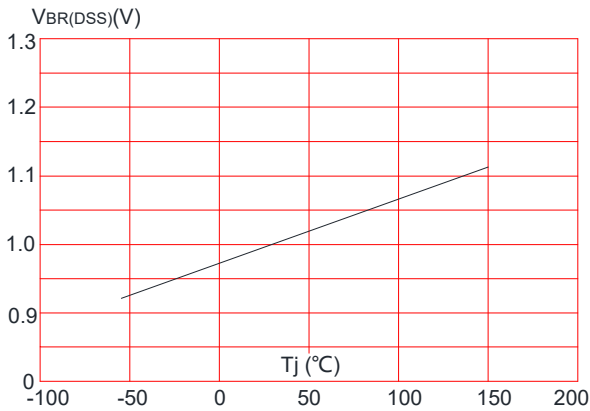
**Figure 6: Capacitance Characteristics**



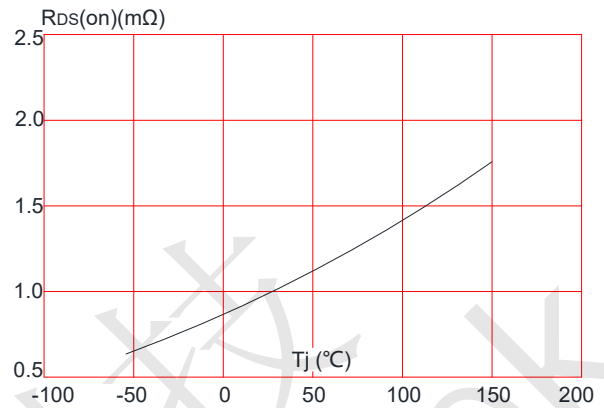


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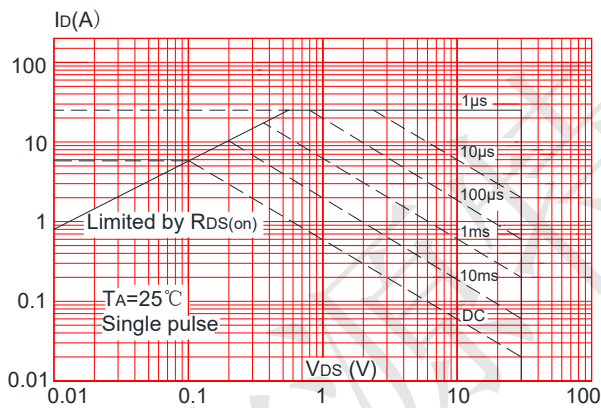
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



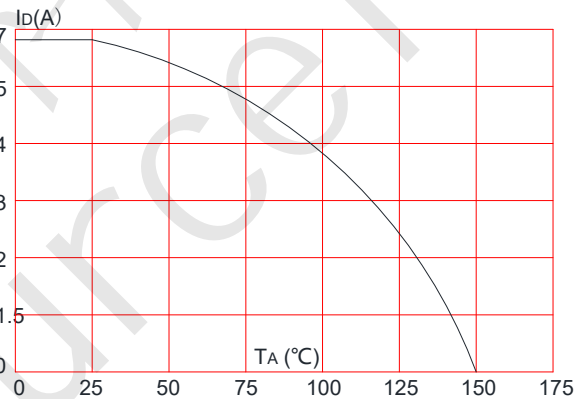
**Figure 8:** Normalized on Resistance vs. Junction Temperature



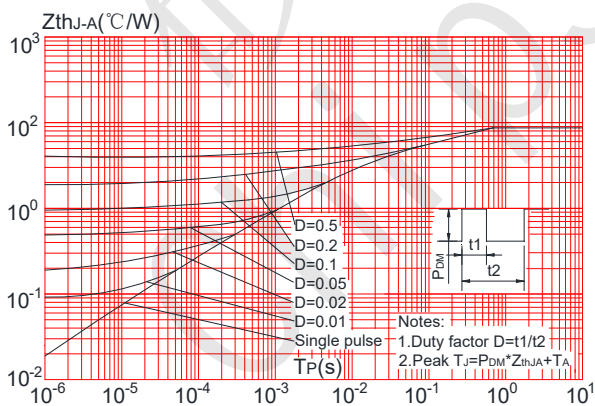
**Figure 9:** Maximum Safe Operating Area



**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature

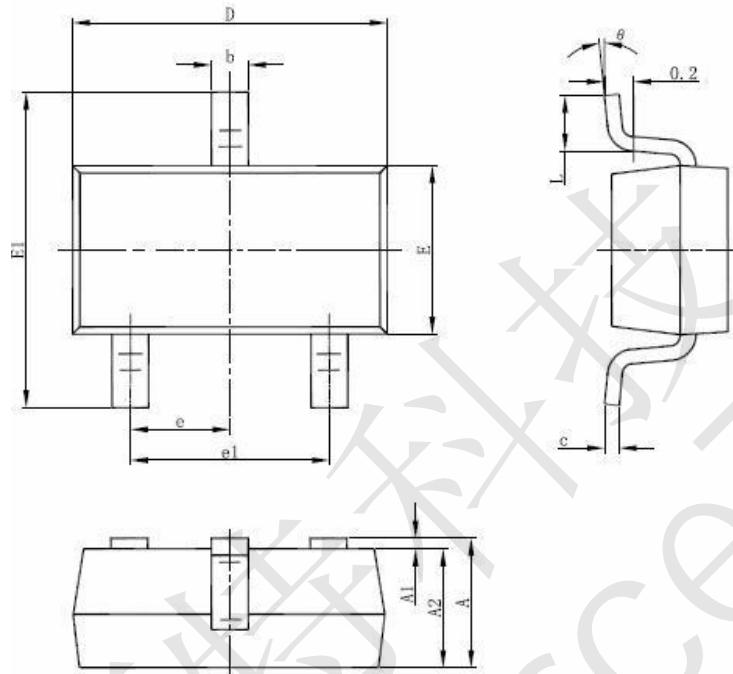


**Figure 11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





CST3410L SOT-23-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°