N-Ch 30V Fast Switching MOSFETs

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

CST3404A Product Summary

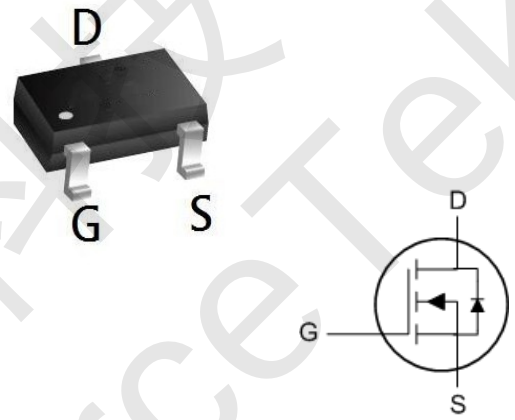
BVDSS	RDSON	ID
30V	20mΩ	6.0A

CST3404A Description

The CST3404A 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 CST3404A meet the RoHS and Green Product requirement with full function reliability approved.

SOT23 Pin Configuration



CST3404AAbsolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_A=25°C	Continuous Drain Current, V_{GS} @ 10V[1]	6.0	A
I_D@T_A=70°C	Continuous Drain Current, V_{GS} @ 10V[1]	4.2	A
I_{DM}	Pulsed Drain Current[2]	23.4	A
P_D@T_A=25°C	Total Power Dissipation[3]	1.5	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

CST3404A Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient [1]	---	85	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	---	°C/W

TEL: +86-0755-27595155 27595165
FAX: +86-0755-27594792
WEB:Http://www.ChipSourceTek.com
E-mail: Sales@ChipSourceTek.com Tony.Wang@ChipSourceTek.com

CST3404A Electrical Characteristics (TJ=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =30V, V_{GS} = 0V,	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V, V_{GS} = ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	1.5	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS}=10V, I_D=5.5A	-	20	25	mΩ
		V_{GS}=4.5V, I_D=4.5A	-	28	40	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} =15V, V_{GS} =0V, f = 1.0MHz	-	490	-	pF
C_{oss}	Output Capacitance		-	79	-	pF
C_{rss}	Reverse Transfer Capacitance		-	61	-	pF
Q_g	Total Gate Charge	V_{DS} =15V, I_D =5.8A, V_{GS} =10V	-	5.2	-	nC
Q_{gs}	Gate-Source Charge		-	0.9	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	1.3	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=15V, I_D=3A, R_{GEN}=3Ω, V_{GS} =10V	-	4.5	-	ns
t_r	Turn-on Rise Time		-	2.5	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	14.5	-	ns
t_f	Turn-off Fall Time		-	3.5	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	6.0	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	23.2	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S=5.8A	-	-	1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Figure1: Output Characteristics

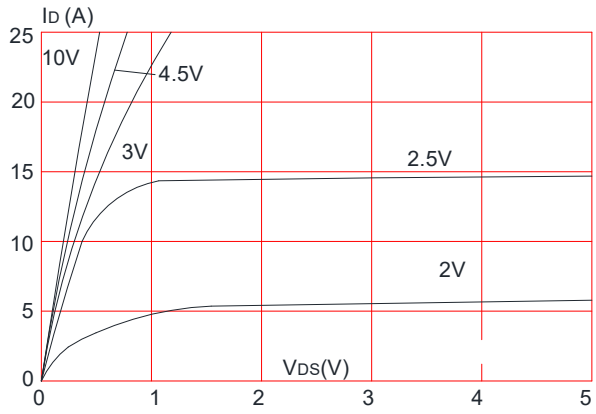


Figure 2: Typical Transfer Characteristics

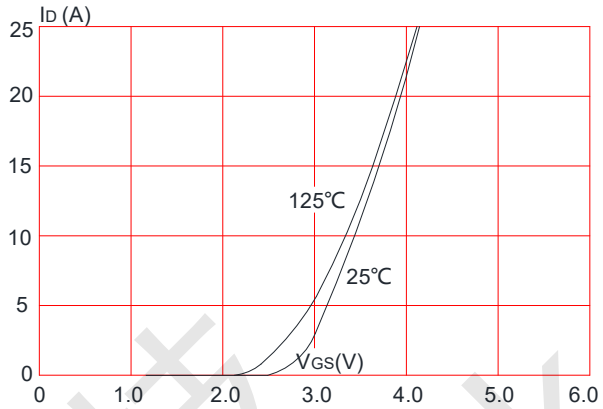


Figure 3: On-resistance vs. Drain Current

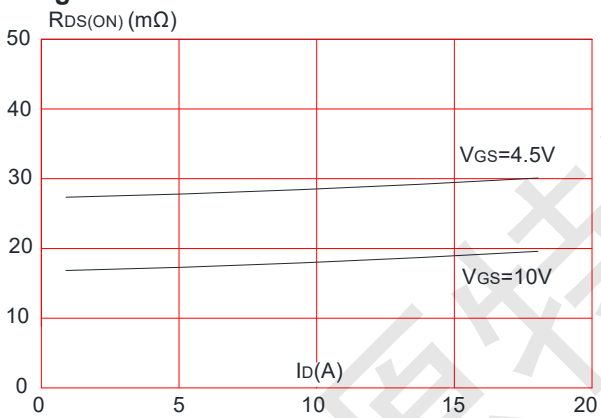


Figure 4: Body Diode Characteristics

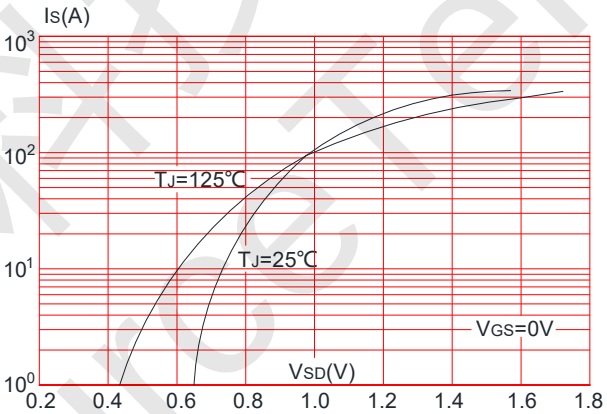


Figure 5: Gate Charge Characteristics

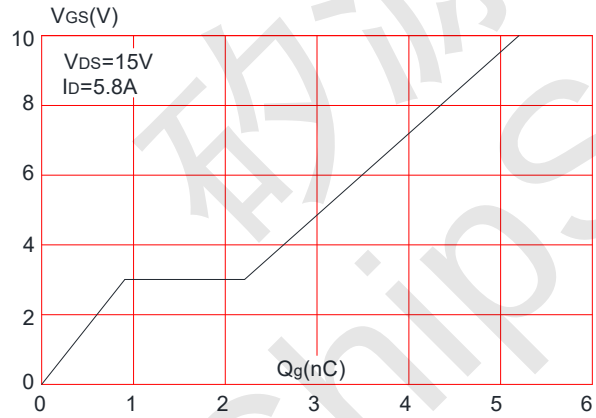
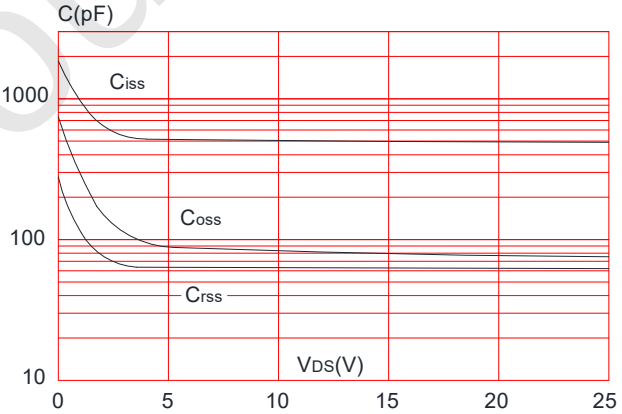


Figure 6: Capacitance Characteristics



TEL: +86-0755-27595155 27595165
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E-mail: Sales@ChipSourceTek.com Tony.Wang@ChipSourceTek.com

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

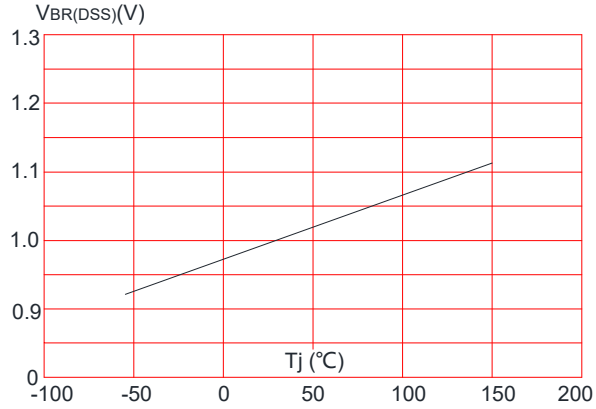


Figure 8: Normalized on Resistance vs. Junction Temperature

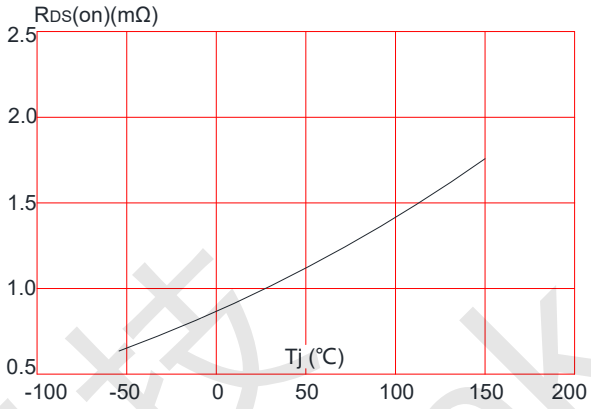


Figure 9: Maximum Safe Operating Area

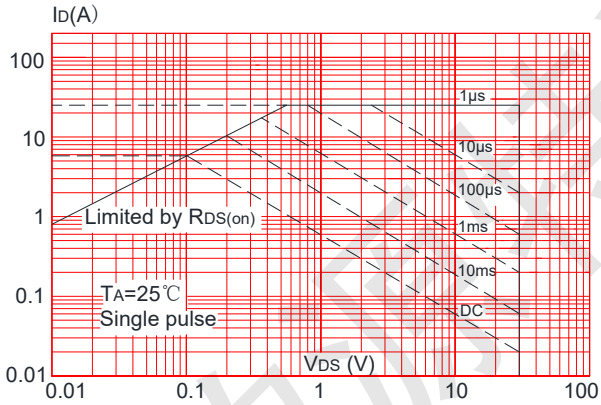


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

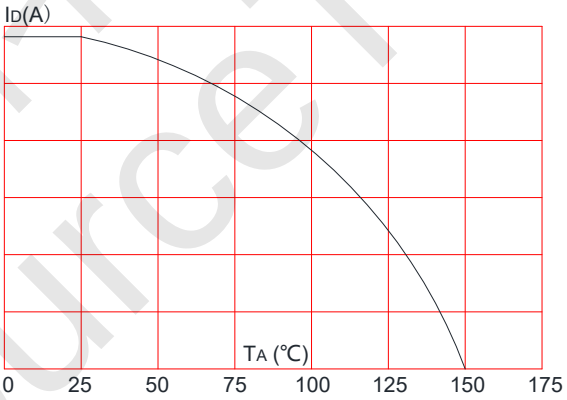
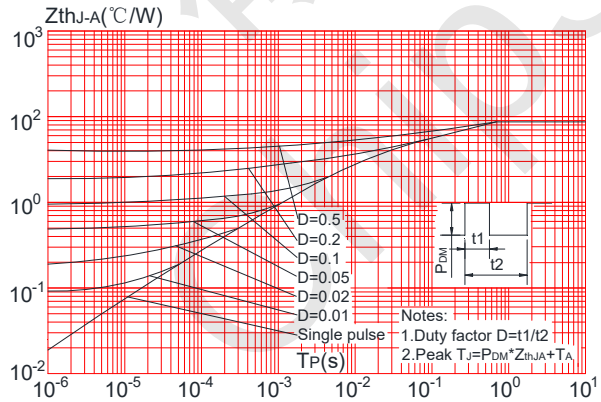


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



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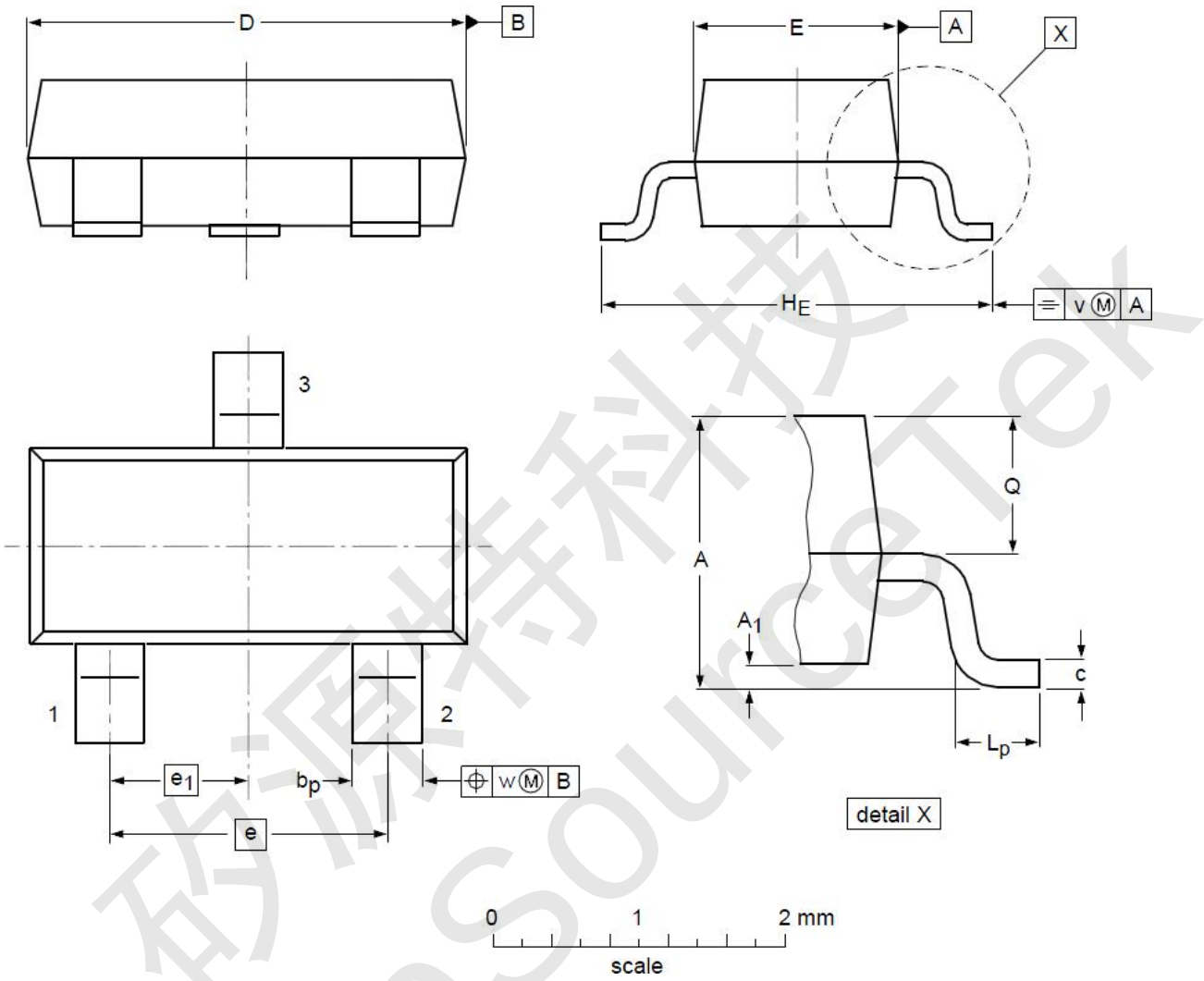
CST3404A Package Mechanical Data-SOT-23



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	**A_1**	0.01	0.05	0.10
b_p	0.30	0.42	0.50	**c**	0.08	0.13	0.15
D	2.80	2.92	3.00	**E**	1.20	1.33	1.40
e	--	1.90	--	**e_1**	--	0.95	--
H_E	2.25	2.40	2.55	**L_p**	0.30	0.42	0.50
Q	0.45	0.49	0.55	**v**	--	0.20	--
w	--	0.10	--				

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