



CST4884B Dual N-Ch 40V Fast Switching MOSFETs

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

CST4884B Product Summary



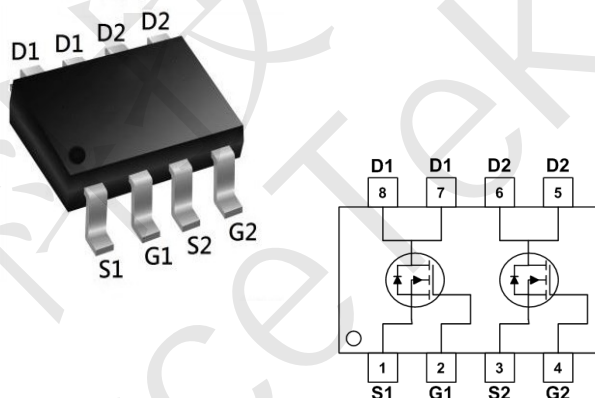
BVDSS	R _{DS(on)}	ID
40V	14mΩ	12A

CST4884B Description

The CST4884B is the high cell density trenched N-ch MOSFETs, which provides excellent R_{DS(on)} and efficiency for most of the small power switching and load switch applications.

The CST4884B meet the RoHS and Green Product requirement with full function reliability approved.

CST4884B SOP8 Pin Configuration



CST4884B Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Symbol	Parameter	Value	Units
V _{DS}	Drain-to-Source Voltage	40	V
V _{GS}	Gate-to-Source Voltage	±20	V
I _D	Continuous Drain Current	T _C = 25°C	20
		T _C = 100°C	12
I _{DM}	Pulsed Drain Current ⁽¹⁾	80	A
E _{AS}	Single Pulsed Avalanche Energy ⁽²⁾	28	mJ
P _D	Power Dissipation	T _C = 25°C	12.5
R _{θJC}	Thermal Resistance, Junction to Case	10.0	°C/W
T _J , T _{STG}	Junction & Storage Temperature Range	-55 to 150	°C



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CST4884B Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	40	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 40\text{V}, V_{GS} = 0\text{V}$	-	-	1.0	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1.0	1.4	2.0	V
$R_{DS(on)}$	Static Drain-Source ON-Resistance ⁽³⁾	$V_{GS} = 10\text{V}, I_D = 10\text{A}$	-	14.0	19.5	m Ω
		$V_{GS} = 4.5\text{V}, I_D = 8\text{A}$	-	17.7	22.6	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = 20\text{V}, f = 1\text{MHz}$	-	850	-	pF
C_{oss}	Output Capacitance		-	78	-	pF
C_{rss}	Reverse Transfer Capacitance		-	69	-	pF
Q_g	Total Gate Charge	$V_{GS} = 0 \text{ to } 10\text{V}$ $V_{DS} = 20\text{V}, I_D = 10\text{A}$	-	12	-	nC
Q_{gs}	Gate Source Charge		-	2	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	2.5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{GS} = 10\text{V}, V_{DD} = 20\text{V}$ $I_D = 10\text{A}, R_{GB1} = 3\Omega$	-	10	-	ns
t_r	Turn-On Rise Time		-	12	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	33	-	ns
t_f	Turn-Off Fall Time		-	9	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	20	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	80	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0\text{V}, I_S = 15\text{A}$	-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time	$I_F = 10\text{A}, di/dt = 100\text{A}/\mu\text{s}$	-	17	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	10	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J=25^\circ\text{C}$, $V_{DD}=20\text{V}$, $V_G=10\text{V}$, $R_G=25\text{ohm}$, $L=0.5\text{mH}$, $I_{AS}=10.5\text{A}$
 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.



CST4884B Typical Performance Characteristics-N

Figure 1: Output Characteristics

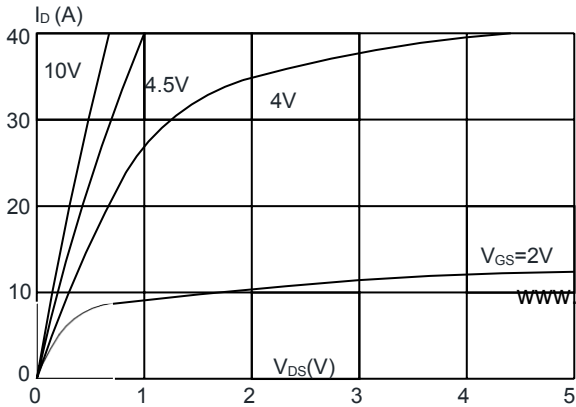


Figure 2: Typical Transfer Characteristics

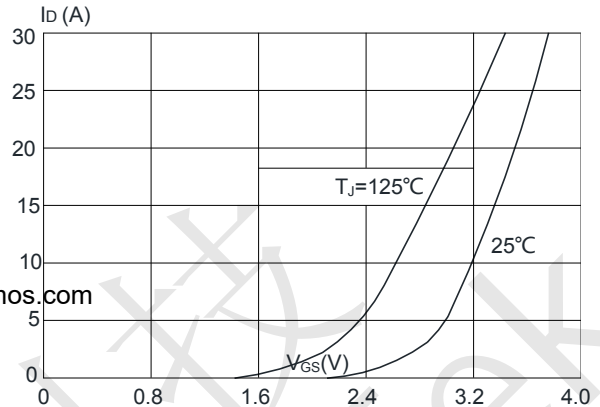


Figure 3: On-resistance vs. Drain Current

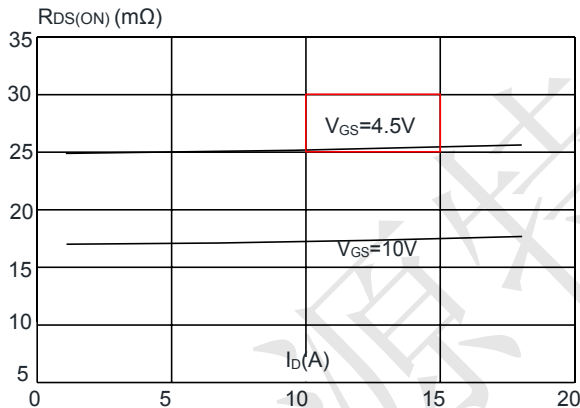


Figure 4: Body Diode Characteristics

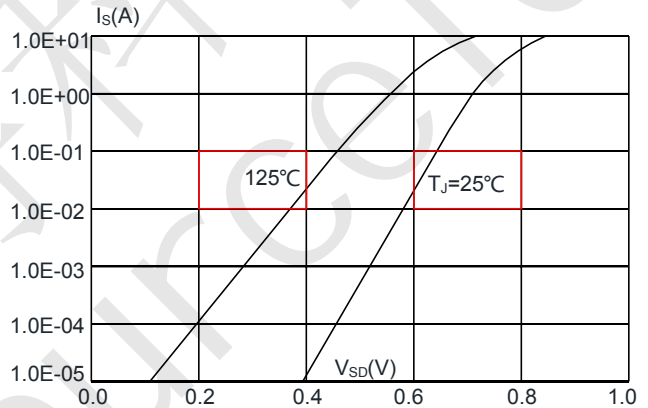


Figure 5: Gate Charge Characteristics

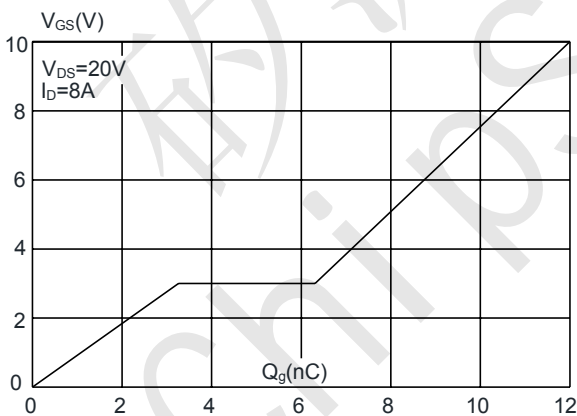


Figure 6: Capacitance Characteristics

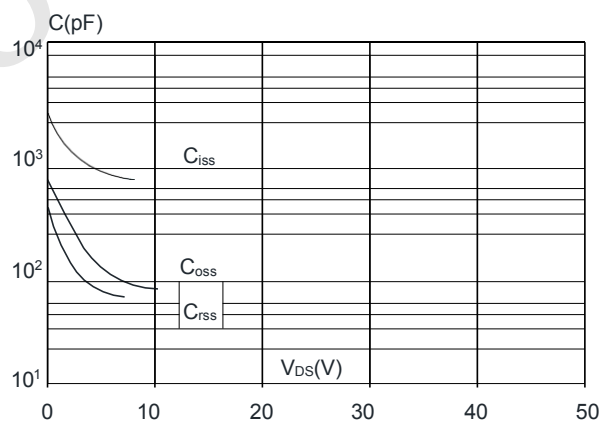




Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

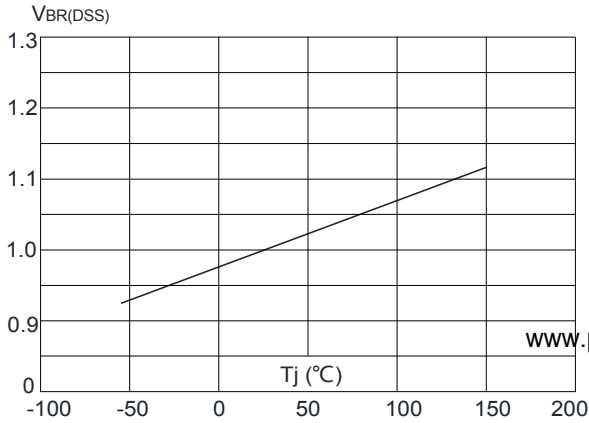


Figure 8: Normalized on Resistance vs. Junction Temperature

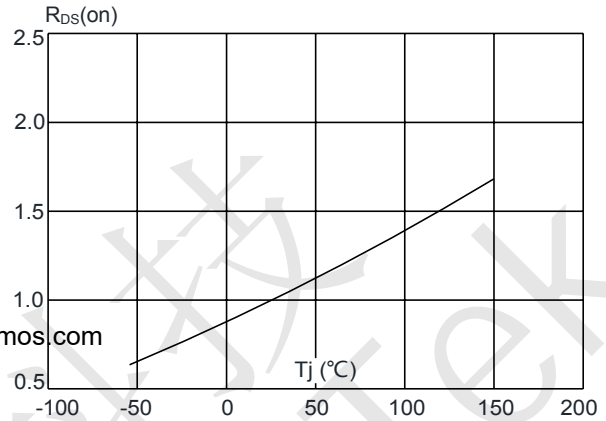


Figure 9: Maximum Safe Operating Area

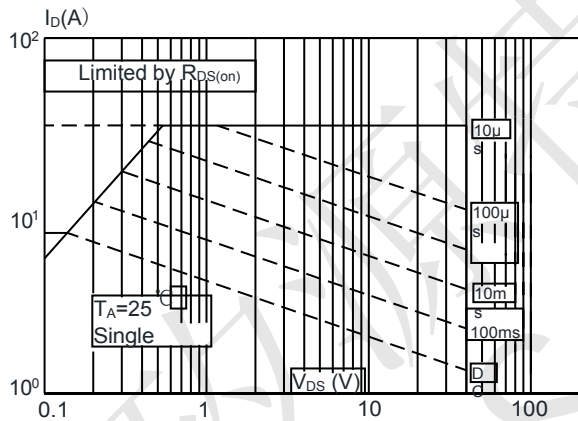


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

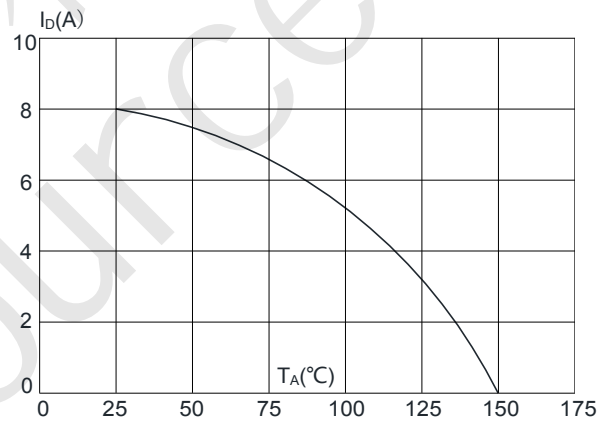
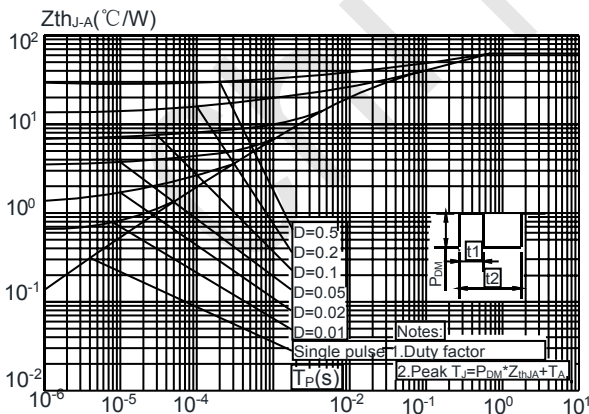
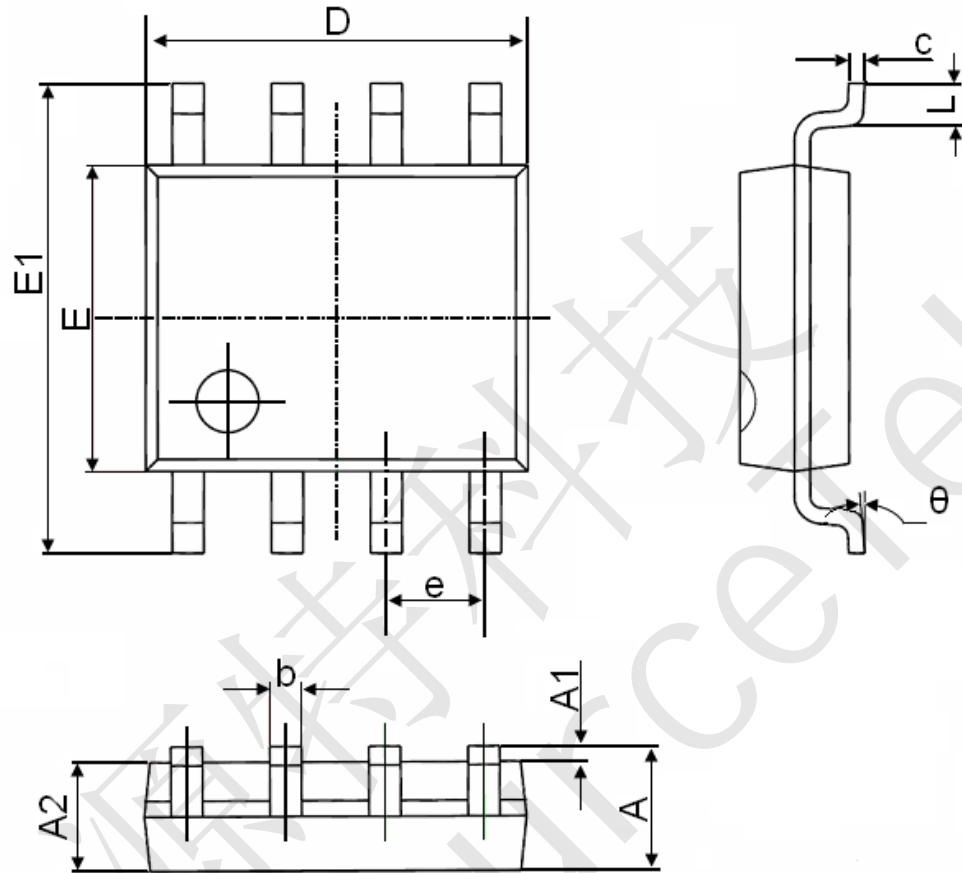


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





CST4884B SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°