



CST30P07L P-Ch 30V Fast Switching MOSFETs

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

CST30P07L Product Summary



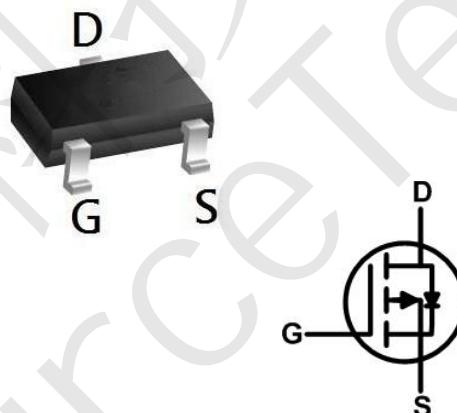
BVDSS	RDS(ON)	ID
-30V	23mΩ	-7.0A

CST30P07L SOT23-3L Pin Configuration

CST30P07L Description

The CST30P07L is the high cell density trenched P-ch MOSFETs, which provides excellent RDS(ON) and efficiency for most of the small power switching and load switch applications.

The CST30P07L meet the RoHS and Green Product requirement with full function reliability approved.



CST30P07L Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-30	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current $T_A = 25^\circ\text{C}$	-7	A
		-4.6	A
I_{DM}	Pulsed Drain Current ^{note1}	-18	A
P_D	Power Dissipation $T_A = 25^\circ\text{C}$	1.5	W
R_{QJA}	Thermal Resistance, Junction to Ambient	61.7	$^\circ\text{C}/\text{W}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$



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CST30P07L Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(\text{BR})\text{DSS}}$	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}$, $I_D = -250\mu\text{A}$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -30\text{V}$, $V_{GS}=0\text{V}$,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0\text{V}$, $V_{GS} = \pm 20\text{V}$	-	-	± 100	nA
On Characteristics						
$V_{GS(\text{th})}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$, $I_D = -250\mu\text{A}$	-1.0	-1.5	-2.5	V
$R_{DS(\text{on})}$ note3	Static Drain-Source on-Resistance	$V_{GS} = -10\text{V}$, $I_D = -7\text{A}$	-	23	35	$\text{m}\Omega$
		$V_{GS} = -4.5\text{V}$, $I_D = -4\text{A}$	-	27	54	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -15\text{V}$, $V_{GS}=0\text{V}$, $f=1.0\text{MHz}$	-	982	-	pF
C_{oss}	Output Capacitance		-	135	-	pF
C_{rss}	Reverse Transfer Capacitance		-	109	-	pF
Q_g	Total Gate Charge	$V_{DS} = -15\text{V}$, $I_D = -4\text{A}$, $V_{GS} = -10\text{V}$	-	10	-	nC
Q_{gs}	Gate-Source Charge		-	2	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	2.7	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -15\text{V}$, $I_D = -7\text{A}$, $V_{GS} = -10\text{V}$, $R_{\text{GEN}} = 2.5\Omega$	-	11	-	ns
t_r	Turn-on Rise Time		-	19	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	45	-	ns
t_f	Turn-off Fall Time		-	26	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_s	Maximum Continuous Drain to Source Diode Forward Current	-	-	-7	A	
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current	-	-	-28	A	
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0\text{V}$, $I_s = -7\text{A}$	-	-0.8	-1.2	V

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

2. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$



CST30P07L Typical Performance Characteristics

Figure 1: Output Characteristics

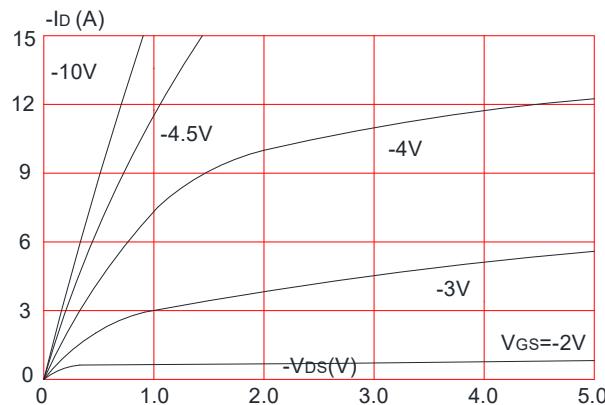


Figure 2: Typical Transfer Characteristics

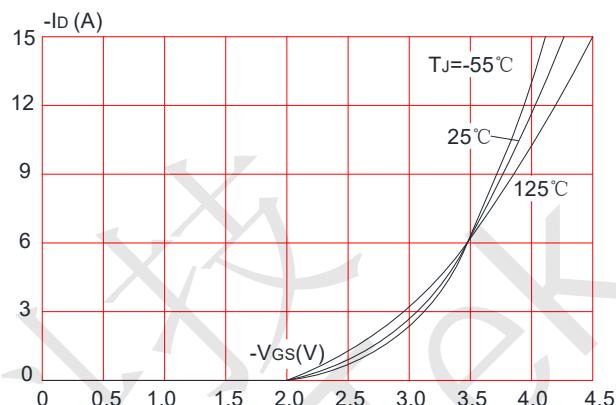


Figure 3: On-resistance vs. Drain Current

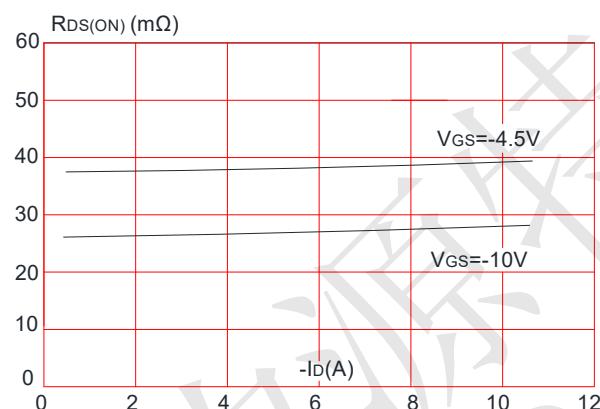


Figure 4: Body Diode Characteristics

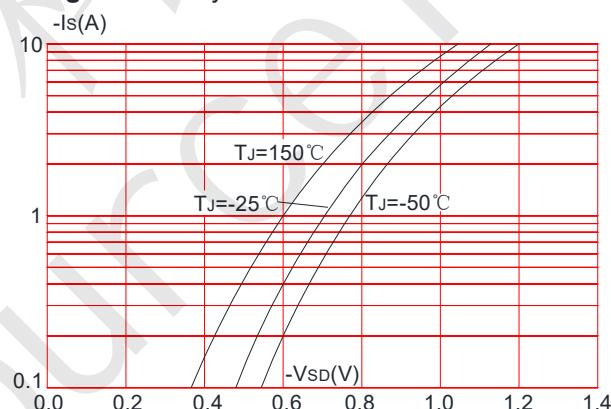


Figure 5: Gate Charge Characteristics

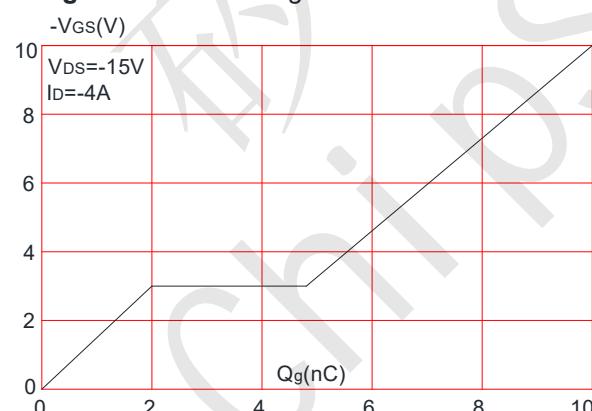
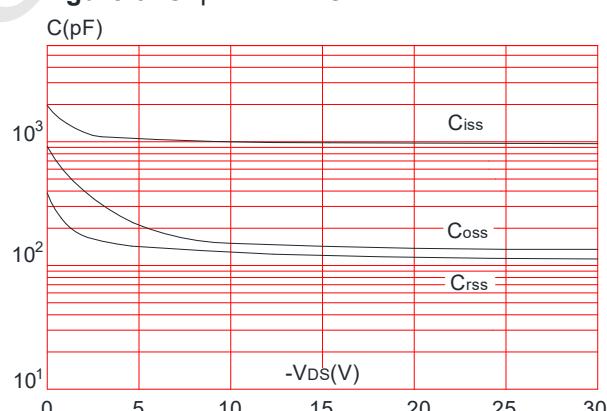


Figure 6: Capacitance Characteristics





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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

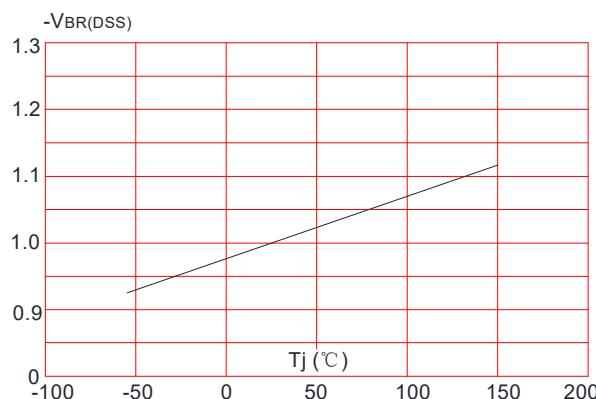


Figure 8: Normalized on Resistance vs. Junction Temperature

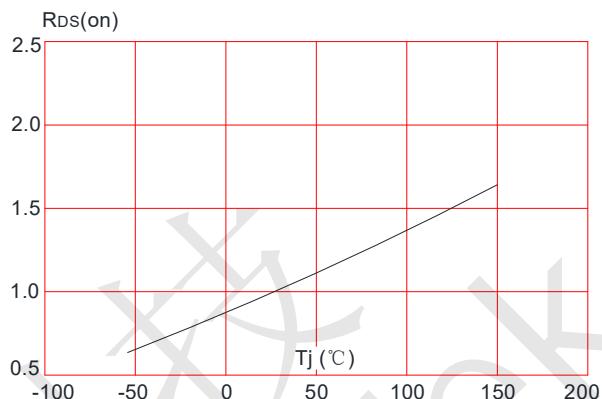
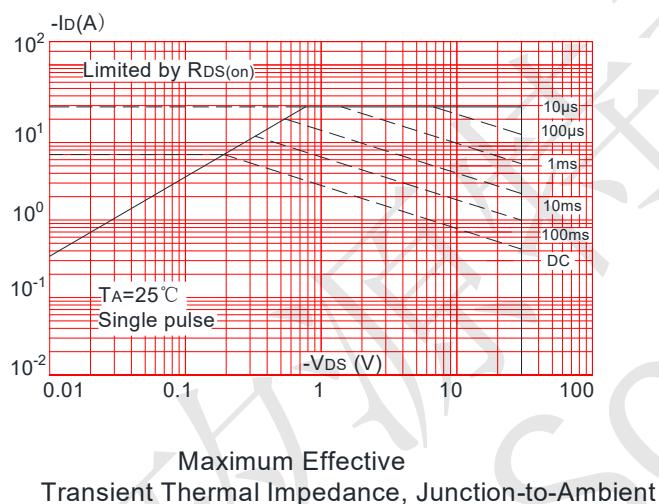


Figure 9: Maximum Safe Operating Area



Maximum Effective
Transient Thermal Impedance, Junction-to-Ambient

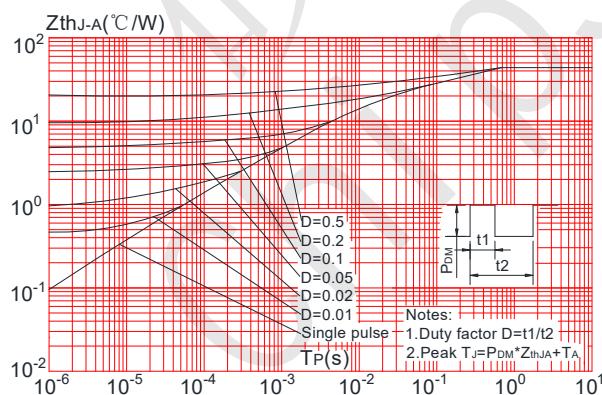
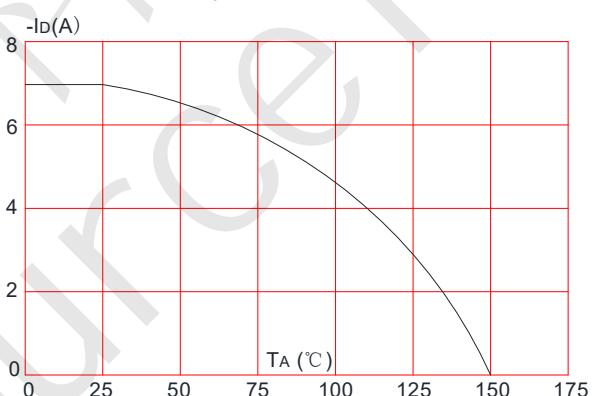
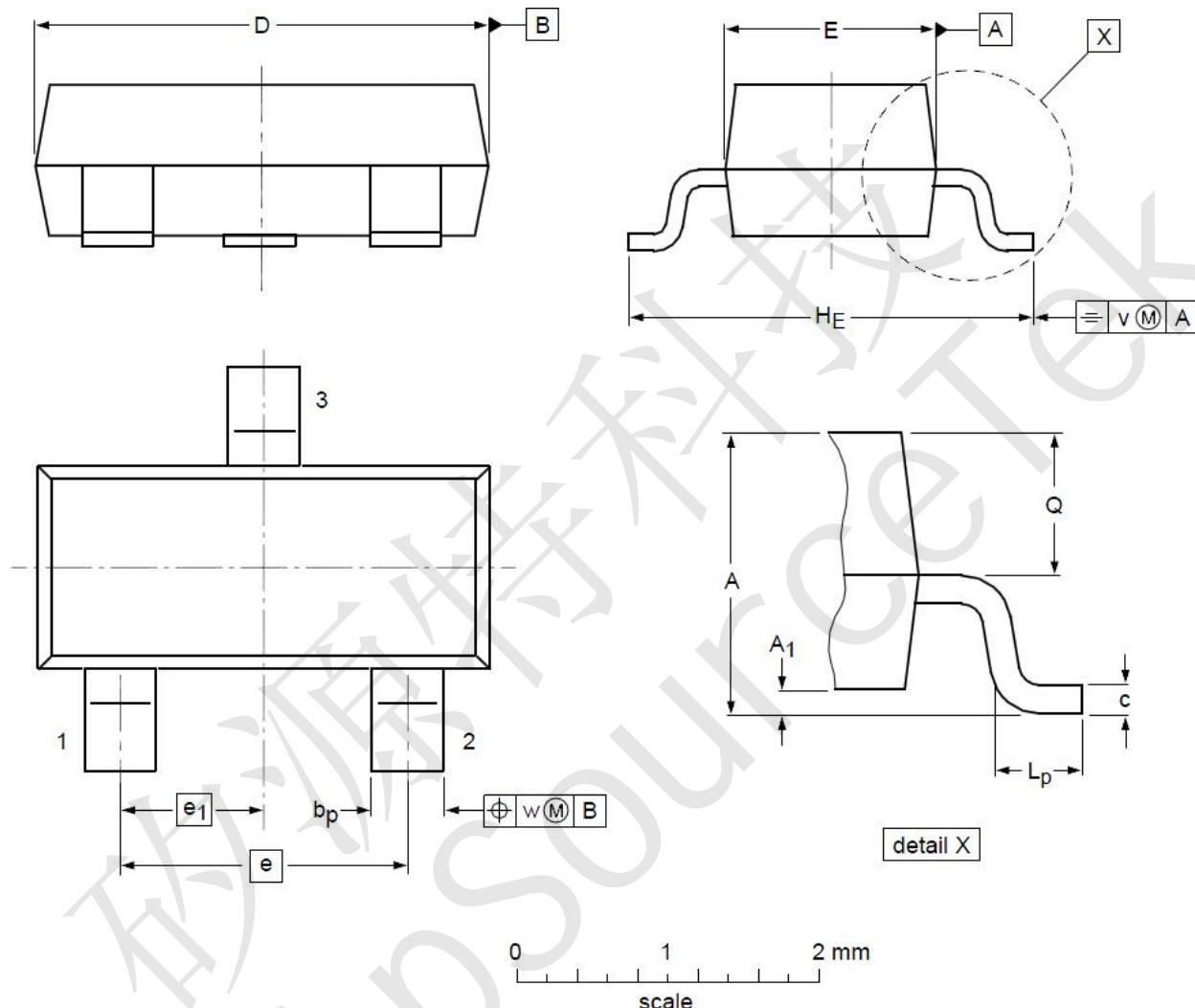


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature





CST30P07L Package Mechanical Data-SOT-23-3L



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	--				