

RoHS Compliant Product  
A suffix of "-C" specifies halogen and lead-free

## DESCRIPTION

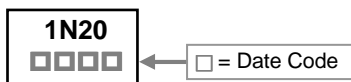
The SST1N20-C is the highest performance trench N-Ch MOSFETs with extreme high cell density, which provide excellent  $R_{DS(ON)}$  and gate charge for most of the synchronous buck converter applications.

The SST1N20-C meet the RoHS and Green Product requirement with full function reliability approved.

## FEATURES

- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- Green Device Available

## MARKING



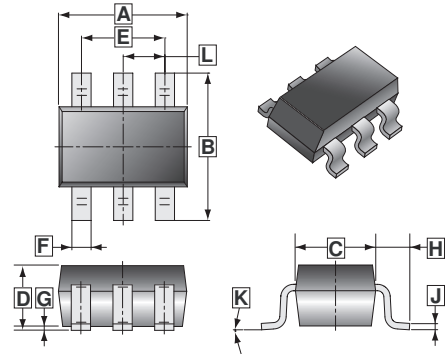
## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-26	3K	7 inch

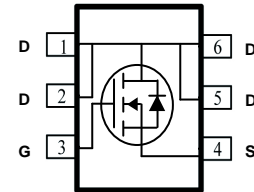
## ORDER INFORMATION

Part Number	Type
SST1N20-C	Lead (Pb)-free and Halogen-free

## SOT-26



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.30	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.25	0.50			



## ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	200	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup> , @ $V_{GS}=10\text{V}$	$I_D$	$T_A=25^\circ\text{C}$	1
		$T_A=70^\circ\text{C}$	0.8
Pulsed Drain Current <sup>3</sup>	$I_{DM}$	4	A
Total Power Dissipation	$P_D$	2	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
<b>Thermal Resistance Ratings</b>			
Thermal Resistance from Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	$t \leq 10\text{sec}$ , 62.5	$^\circ\text{C/W}$
		Steady State, 110	
Thermal Resistance from Junction-Ambient <sup>2</sup>		156	
Thermal Resistance from Junction-Case <sup>1</sup>	$R_{\theta JC}$	70	

**ELECTRICAL CHARACTERISTICS** ( $T_J=25^\circ\text{C}$  unless otherwise specified)

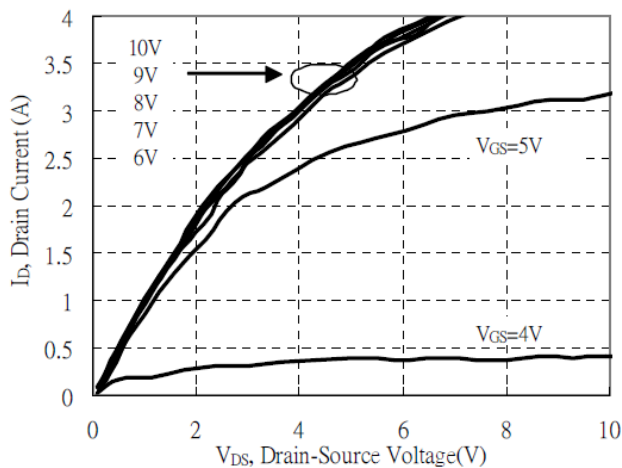
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$BV_{DSS}$	200	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	2	-	4	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Forward Transconductance	$g_{fs}$	-	1.9	-	S	$V_{DS}=5\text{V}, I_D=0.5\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=160\text{V}, V_{GS}=0$
Static Drain-Source On-Resistance <sup>4</sup>	$R_{DS(ON)}$	-	-	1.35	$\Omega$	$V_{GS}=10\text{V}, I_D=0.5\text{A}$
		-	-	1.7		$V_{GS}=6\text{V}, I_D=0.1\text{A}$
Total Gate Charge	$Q_g$	-	5.8	-	nC	$I_D=0.5\text{A}$ $V_{DS}=160\text{V}$ $V_{GS}=10\text{V}$
Gate-Source Charge	$Q_{gs}$	-	0.7	-		
Gate-Drain Charge	$Q_{gd}$	-	2.5	-		
Turn-on Delay Time	$T_{d(on)}$	-	33	-	nS	$V_{DD}=100\text{V}$ $I_D=0.5\text{A}$ $V_{GS}=10\text{V}$ $R_G=25\Omega$
Rise Time	$T_r$	-	50	-		
Turn-off Delay Time	$T_{d(off)}$	-	150	-		
Fall Time	$T_f$	-	75	-		
Input Capacitance	$C_{iss}$	-	137	-	pF	$V_{GS}=0$ $V_{DS}=25\text{V}$ $f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	15	-		
Reverse Transfer Capacitance	$C_{rss}$	-	6	-		
<b>Source-Drain Diode</b>						
Continuous Source Current <sup>1</sup>	$I_S$	-	-	1	A	
Pulsed Source Current <sup>3</sup>	$I_{SM}$	-	-	4		
Forward On Voltage <sup>4</sup>	$V_{SD}$	-	-	1.2	V	$I_S=1\text{A}, V_{GS}=0$
Reverse Recovery Time	$t_{rr}$	-	90	-	nS	$I_F=0.5\text{A}, dI/dt=100\text{A}/\mu\text{s}$ $T_J=25^\circ\text{C}$
Reverse Recovery Charge	$Q_{rr}$	-	280	-	nC	

Notes:

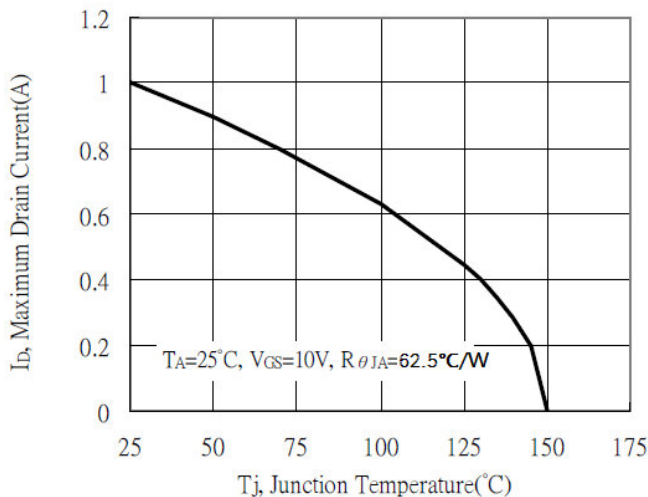
- Surface Mounted on 1"x1" FR4 Board with 2OZ copper.
- When mounted on Min. copper pad.
- Pulse width limited by maximum junction temperature, Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .
- Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

**TYPICAL CHARACTERISTICS CURVE**

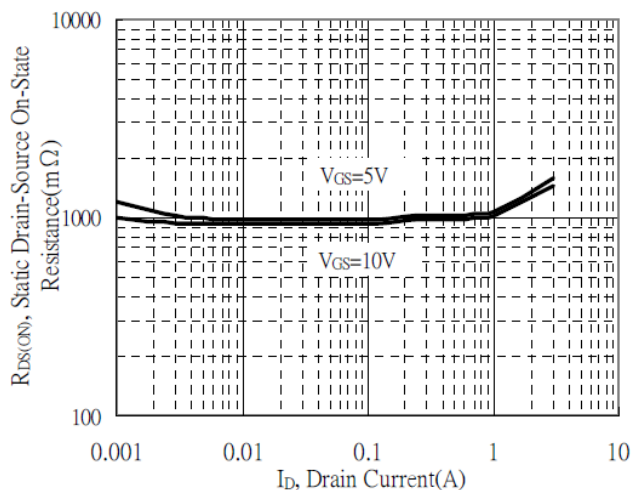
Typical Output Characteristics



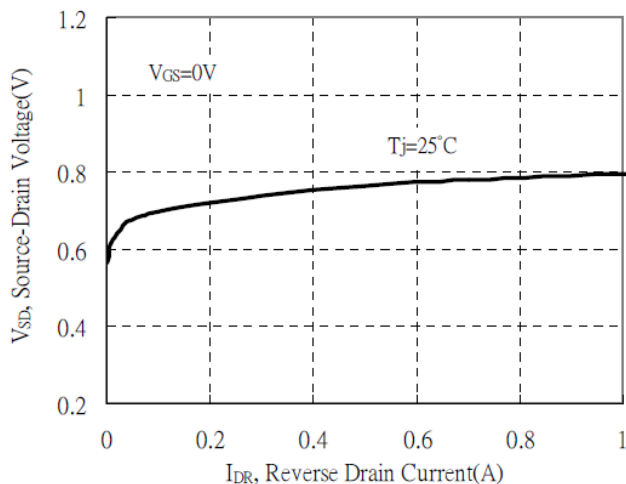
Maximum Drain Current vs Junction Temperature



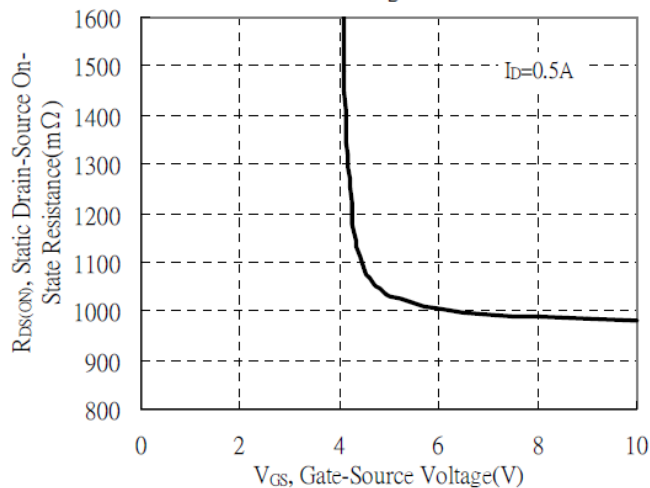
Static Drain-Source On-State resistance vs Drain Current



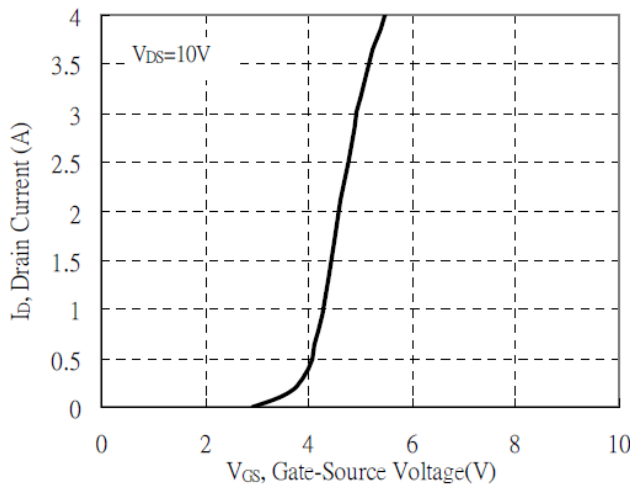
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

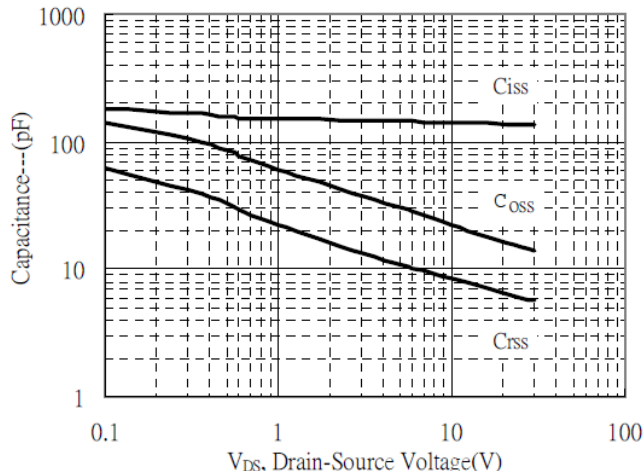


Typical Transfer Characteristics

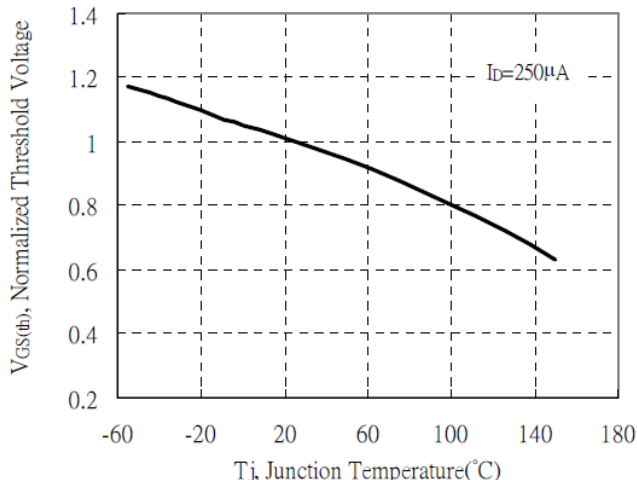


**TYPICAL CHARACTERISTICS CURVE**

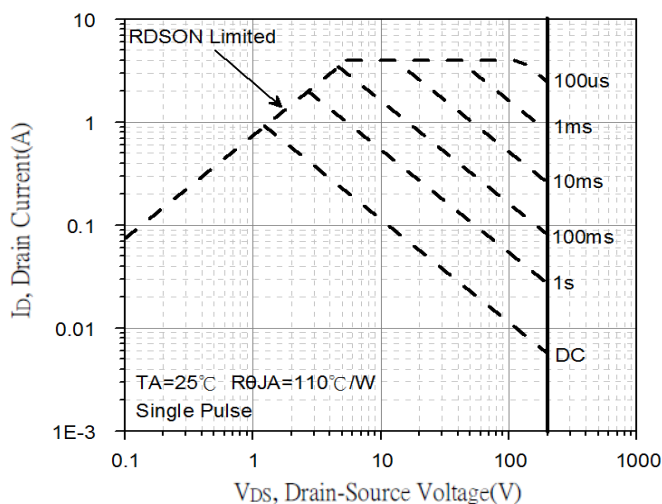
Capacitance vs Drain-to-Source Voltage



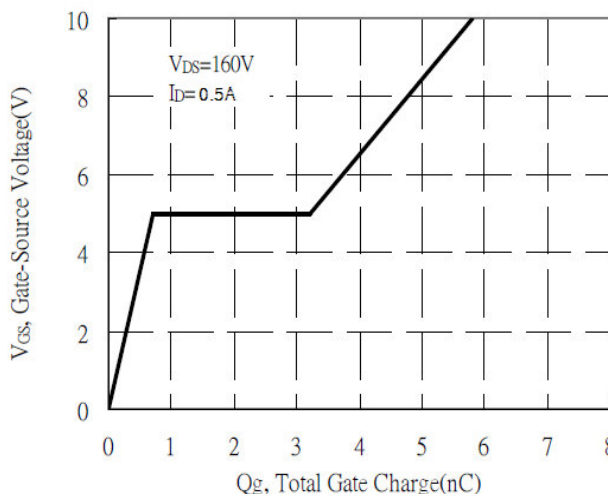
Threshold Voltage vs Junction Temperature



Maximum Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves

