



SSC8L420GT8

N-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
40V	±20V	2.6mΩ@10V	122A
		3.3mΩ@4V5	

➤ Description

This device is N-Channel enhancement MOSFET. Uses SGT technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

100% UIS + ΔVDS + Rg Tested!

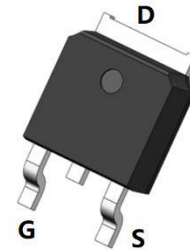
➤ Applications

- DC/DC converters
- Power supplies
- Motor Drive Control
- Synchronous rectification

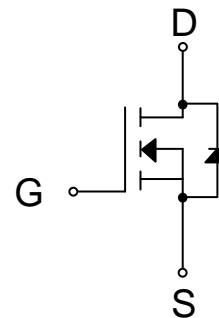
➤ Ordering Information

Device	Package	Shipping
SSC8L420GT8	TO-252-2L	2500/Reel

➤ Pin Configuration



TO-252-2L (Top View)



Pin Configuration



Marking

(XXYY: Internal Traceability Code)



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

Symbol	Parameter	Ratings	Unit
V_{DSS}	Drain-to-Source Voltage	40	V
V_{GSS}	Gate-to-Source Voltage	± 20	V
I_D	Continuous Drain Current ^d	$T_C=25^{\circ}\text{C}$	122
		$T_C=100^{\circ}\text{C}$	68
I_{DSM}	Continuous Drain Current ^a	$T_A=25^{\circ}\text{C}$	21
		$T_A=70^{\circ}\text{C}$	15
I_{DM}	Pulsed Drain Current ^b	488	A
P_D	Power Dissipation ^c	$T_C=25^{\circ}\text{C}$	83
		$T_C=100^{\circ}\text{C}$	33
P_{DSM}	Power Dissipation ^a	$T_A=25^{\circ}\text{C}$	2.5
		$T_A=70^{\circ}\text{C}$	1.6
I_{AS}	Avalanche Current ^b L=0.5mH Single Pulse	32	A
E_{AS}	Avalanche Energy ^b L=0.5mH Single Pulse	256	mJ
T_J	Operation junction temperature	-55~150	$^{\circ}\text{C}$
T_{STG}	Storage temperature range	-55~150	

➤ Thermal Resistance Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Max	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	36	50	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	1.1	1.5	

Note:

- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_D is based on $T_{J(\text{MAX})}=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
- The maximum current rating is package limited.

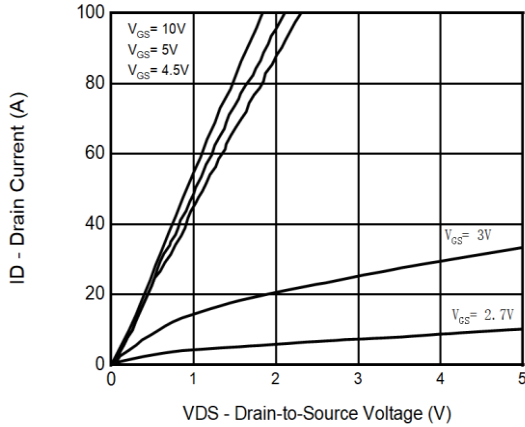


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

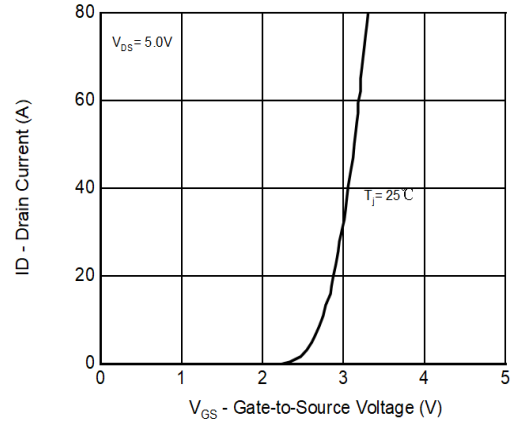
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	40			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	1	1.5	2.0	V
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = 10V, I _D = 20A		2.6	3.5	mΩ
		V _{GS} = 4.5V, I _D = 10A		3.3	4.5	
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 40V, V _{GS} = 0V			1	μA
I _{GSS}	Gate-Source Leak Current	V _{GS} = ±20V, V _{DS} = 0V			±200	nA
V _{SD}	Forward Voltage	V _{GS} = 0V, I _S = 10A		0.75	1.3	V
R _G	Gate Resistance	V _{DS} = 0V, f = 1MHz		1.3		Ω
C _{ISS}	Input Capacitance	V _{DS} = 20V, V _{GS} = 0V, f = 1MHz		2825		pF
C _{OSS}	Output Capacitance			670		
C _{RSS}	Reverse Transfer Capacitance			81		
Q _G	Total Gate Charge	V _{GS} = 10V, V _{DS} = 20V, I _D = 20A		57		nC
Q _{GS}	Gate to Source Charge			7.0		
Q _{GD}	Gate to Drain Charge			12		
T _{D(ON)}	Turn-on Delay Time	V _{GS} = 10V, V _{DS} = 20V, R _L = 1Ω, R _G = 3Ω		8.8		ns
T _r	Rise Time			25		
T _{D(OFF)}	Turn-off Delay Time			41		
T _f	Fall Time			33		
T _{rr}	Diode Recovery Time	I _F =20A, di/dt=500A/us		45		ns
Q _{rr}	Diode Recovery Charge	I _F =20A, di/dt=500A/us		98		nC



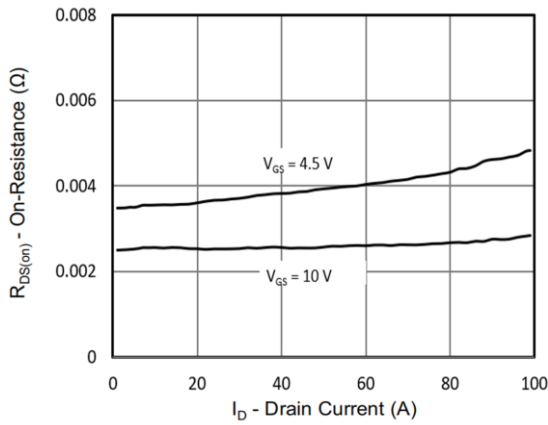
➤ **Typical Performance Characteristics (T_A=25°C unless otherwise noted)**



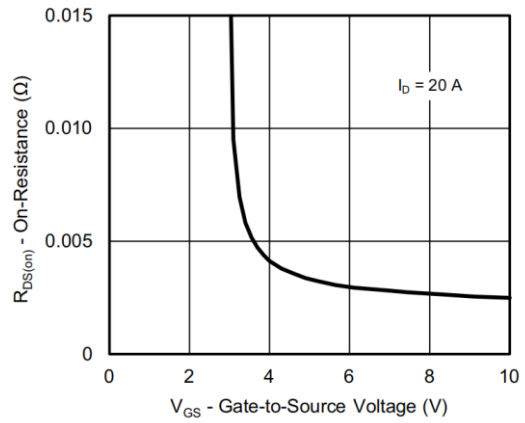
Output Characteristics



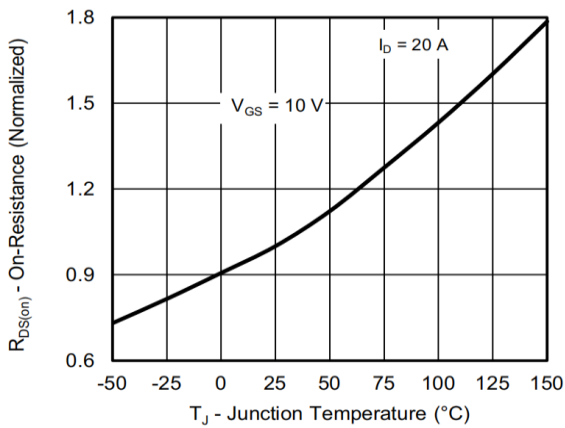
Transfer Characteristics



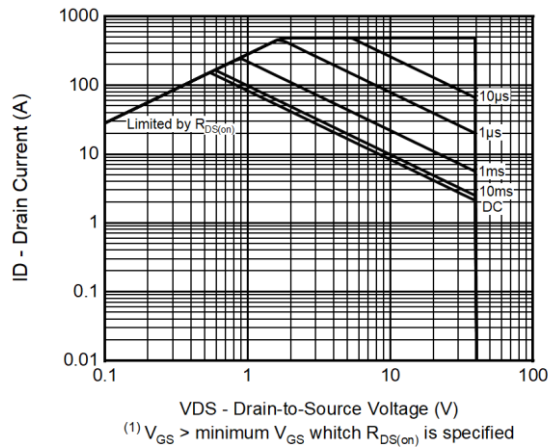
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage

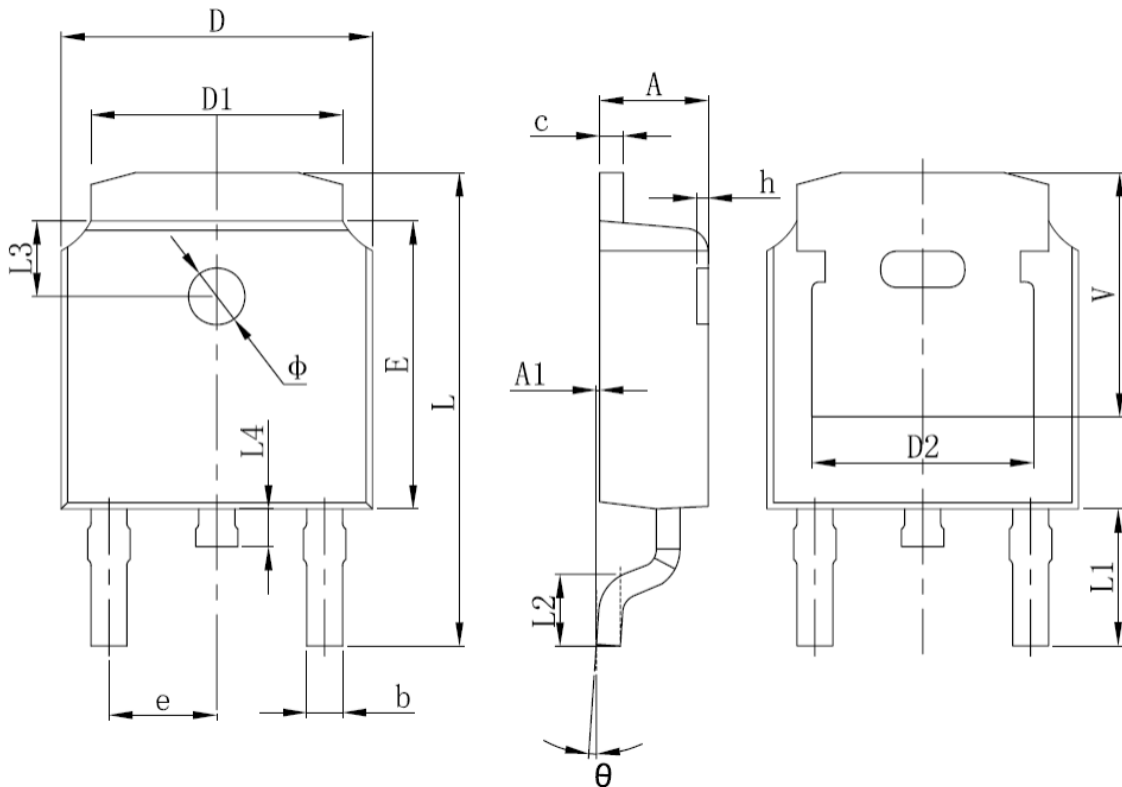


On-Resistance vs. Junction Temperature



Safe Operating Area

➤ Package Information



Package: TO-252-2L

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF		0.010REF	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP		0.050TYP	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°



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