



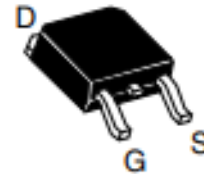
SSC8140GT8

N-Channel Enhanced MOSFET

➤ Features

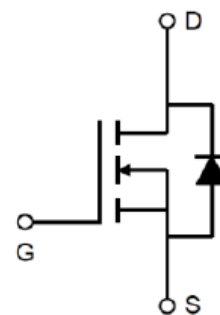
VDS	VGS	RDSON Typ.	ID
40V	±20V	4.7mR@10V	96A
		6mR@4.5V	

➤ Pin Configuration



➤ Description

This device is N-Channel enhancement MOSFET. Uses advanced trench 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+DVDS+Rg Test.

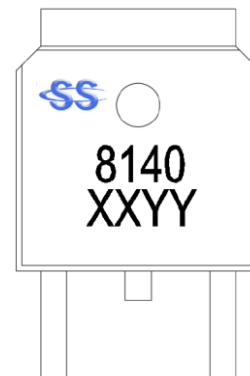


➤ Applications

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

➤ Ordering Information

Device	Package	Shipping
SSC8140GT8	TO-252	2500/Reel



Marking

(XX: Product Year/YY: Product Week)

➤ **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	$T_C=25^{\circ}\text{C}$	96
		$T_C=100^{\circ}\text{C}$	50
I_{DSM}	Continuous Drain Current ^a	$T_A=25^{\circ}\text{C}$	31
		$T_A=70^{\circ}\text{C}$	23
I_{DM}	Pulsed Drain Current ^b	386	A
P_D	Power Dissipation ^c	$T_C=25^{\circ}\text{C}$	78
		$T_C=100^{\circ}\text{C}$	31
P_{DSM}	Power Dissipation ^a	$T_A=25^{\circ}\text{C}$	8.3
		$T_A=70^{\circ}\text{C}$	5.3
I_{AS}	Avalanche Current ^b L=0.5mH Single Pulse	35	A
E_{AS}	Avalanche Energy ^b L=0.5mH Single Pulse	306	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	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	15	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	1.6	

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.

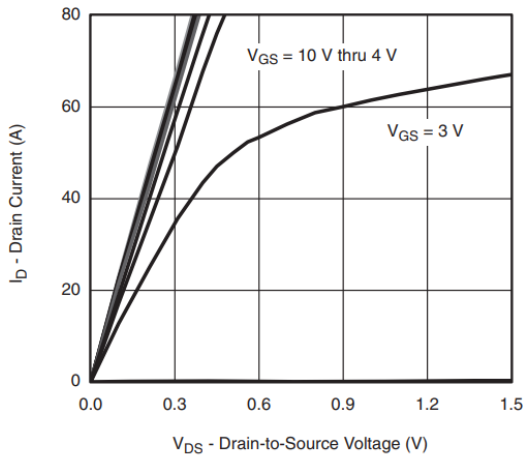


➤ **Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

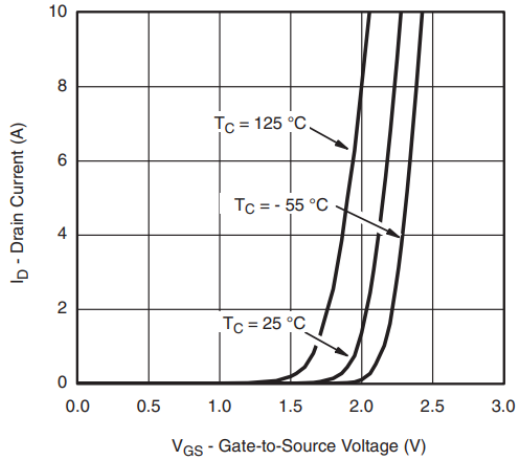
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=30A$		4.7	6	mR
		$V_{GS}=4.5V, I_D=20A$		6	8	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=32V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
G_{FS}	Transconductance	$V_{DS}=5V, I_D=20A$		30		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=15A$		0.8	1.3	V
R_g	Gate Resistance	$V_{GS}=0V, f=1MHz$		1.5	3	R
C_{iss}	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1MHz$		3100		pF
C_{oss}	Output Capacitance			360		
C_{rss}	Reverse Capacitance			280		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_L=1R, V_{DS}=20V, R_G=3R$		12		ns
T_r	Rise time			9		
$T_{D(OFF)}$	Turn-off delay time			24		
T_f	Fall time			11		
Q_G	Total Gate Charge	$V_{GS}=10V, V_{DS}=20V, I_D=20A$		45		nC
Q_{GS}	Gate Source Charge			13		
Q_{GD}	Gate Drain Charge			7		
T_{rr}	Diode Recovery Time	$I_F=20A, di/dt=500A/\mu s$		15		ns
Q_{rr}	Diode Recovery Charge	$I_F=20A, di/dt=100A/\mu s$		41		nC



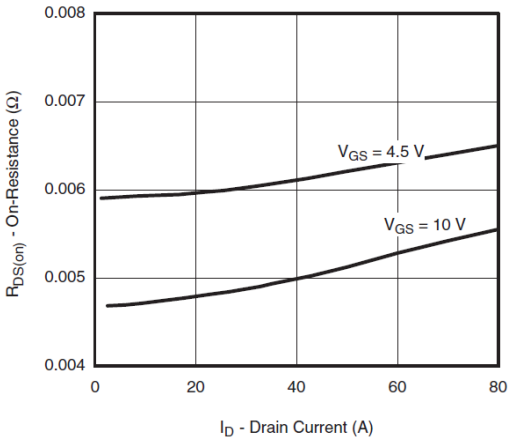
➤ **Typical Characteristics** ($T_A=25^\circ\text{C}$ unless otherwise noted)



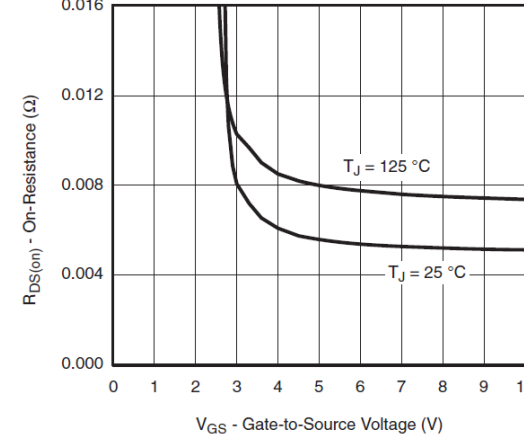
Output Characteristics



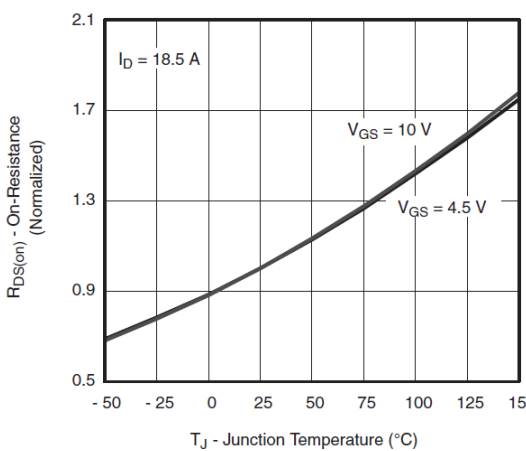
Transfer Characteristics



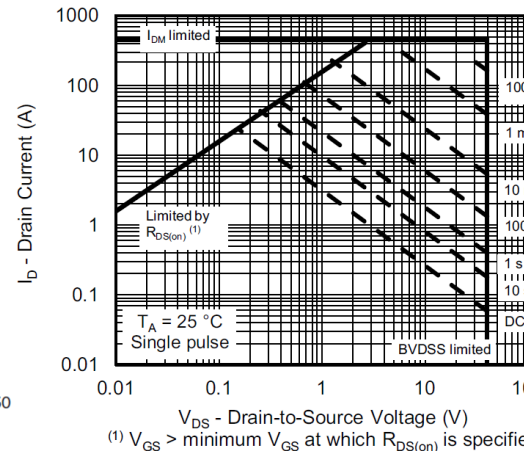
On-Resistance vs. Drain Current and Gate Voltage



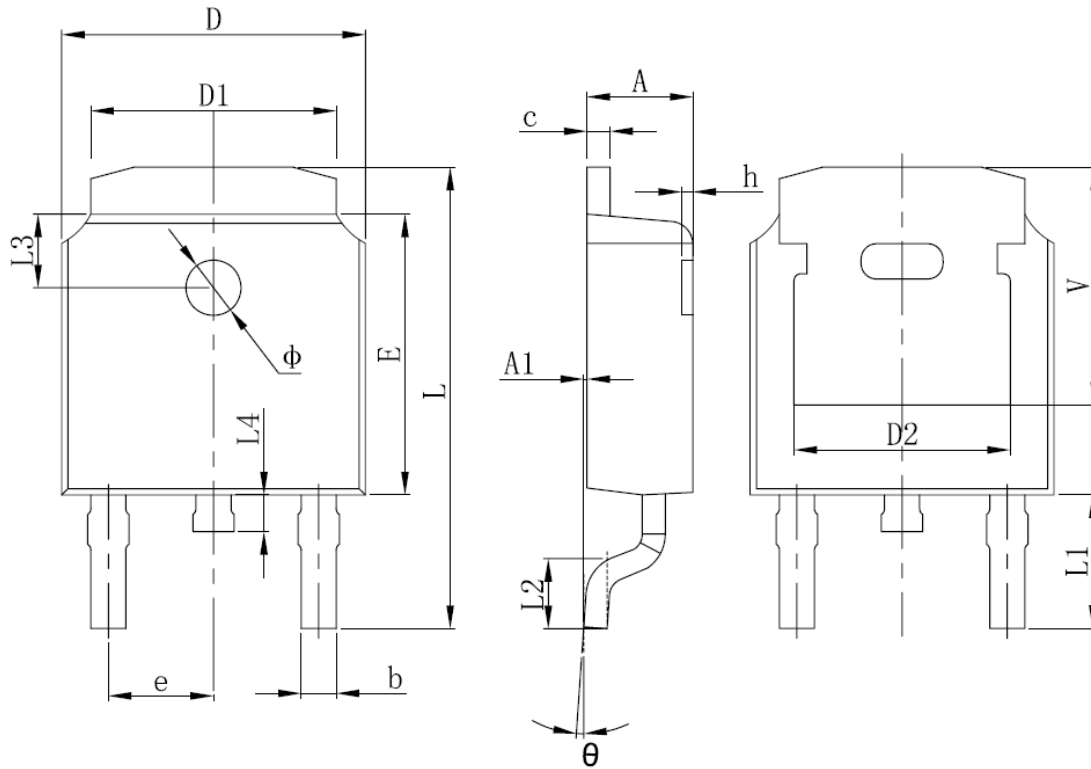
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature



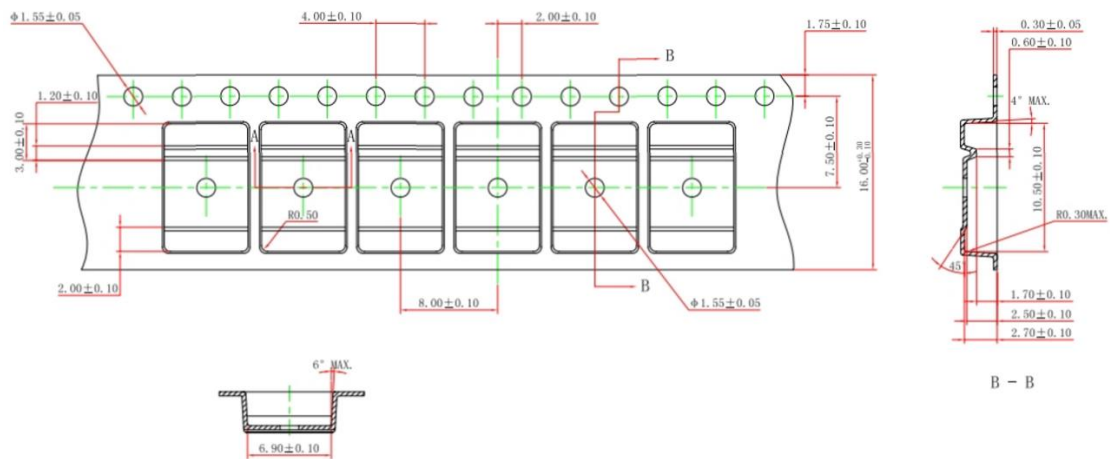
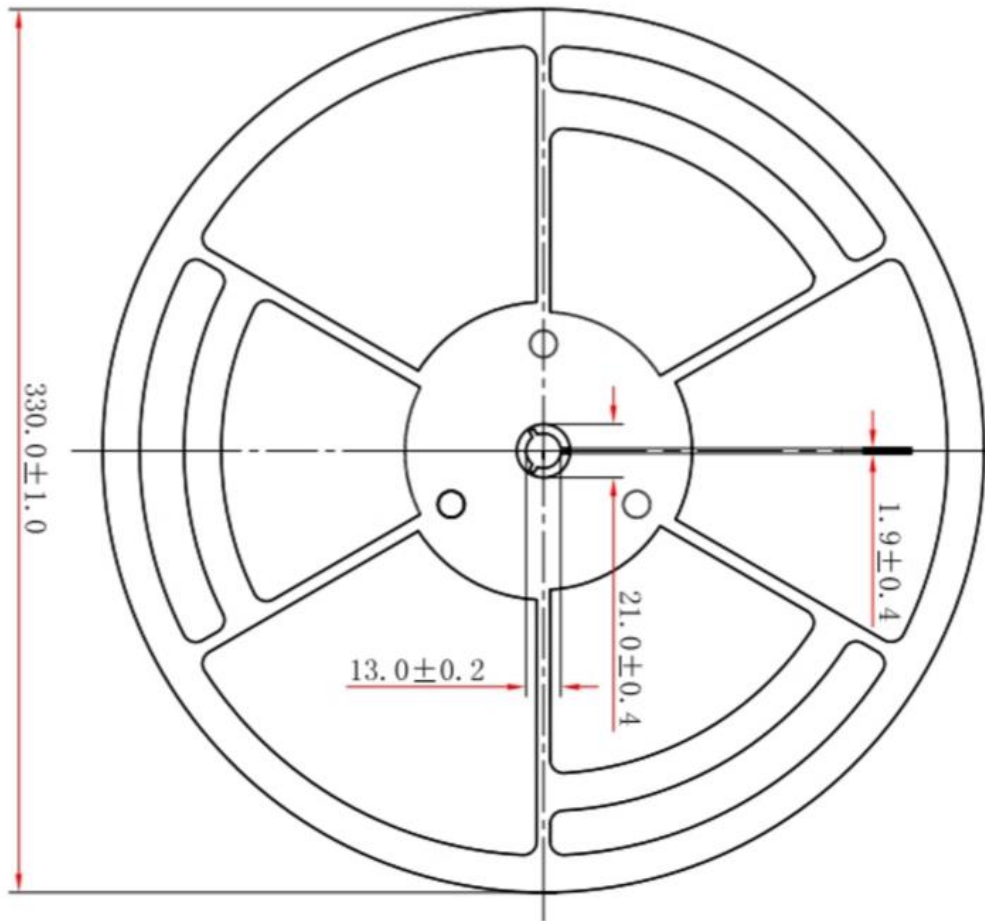
Safe Operating Area, Junction-to-Ambient

➤ Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	



➤ Tape and Reel





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