



SSC80312GT8

N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	$\pm 20V$	3m Ω @10V	140A
		4.5m Ω @4.5V	

➤ 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 + ΔV_{DS} + R_g Tested!

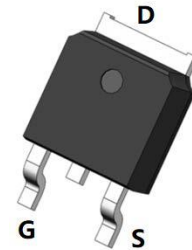
➤ Applications

- Motor Drive Control
- Portable Devices
- DCDC Conversion
- Power Supplies
- Synchronous Rectification

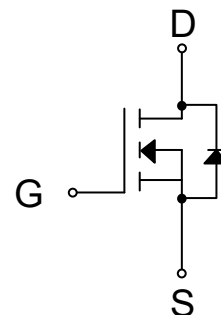
➤ Ordering Information

Device	Package	Shipping
SSC80312GT8	TO-252-2L	2500/Reel

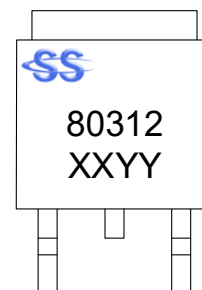
➤ Pin Configuration



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		30	V
V_{GSS}	Gate-to-Source Voltage		± 20	V
I_{D}	Continuous Drain Current ^d	$T_{\text{C}}=25^{\circ}\text{C}$	140	A
		$T_{\text{C}}=100^{\circ}\text{C}$	75	
I_{DSM}	Continuous Drain Current ^a	$T_{\text{A}}=25^{\circ}\text{C}$	29	A
		$T_{\text{A}}=70^{\circ}\text{C}$	22	
I_{DM}	Pulsed Drain Current ^b		560	A
P_{D}	Power Dissipation ^c	$T_{\text{C}}=25^{\circ}\text{C}$	83	W
		$T_{\text{C}}=100^{\circ}\text{C}$	33	
P_{DSM}	Power Dissipation ^a	$T_{\text{A}}=25^{\circ}\text{C}$	4.2	W
		$T_{\text{A}}=70^{\circ}\text{C}$	2.7	
I_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		25	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		156	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
$R_{\theta\text{JA}}$	Junction-to-Ambient Thermal Resistance ^a	30	$^{\circ}\text{C}/\text{W}$
$R_{\theta\text{JC}}$	Junction-to-Case Thermal Resistance	1.5	

Note:

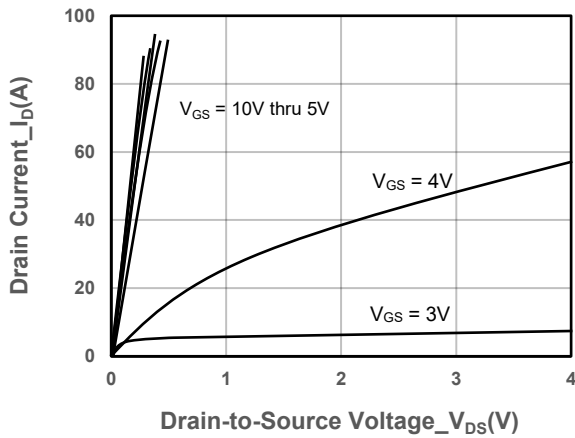
- The value of $R_{\theta\text{JA}}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_{\text{A}}=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_{D} is based on $T_{\text{J}(\text{MAX})}=150^{\circ}\text{C}$, 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)**

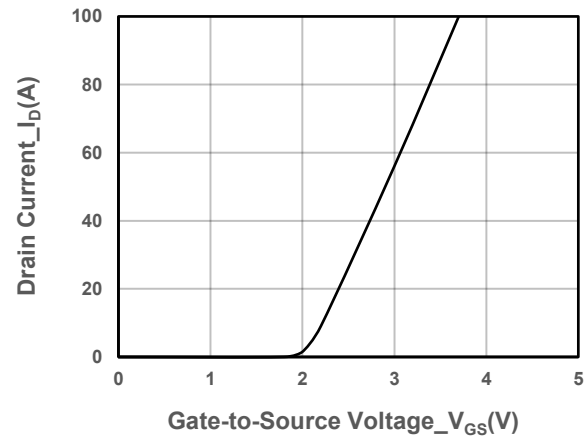
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.6	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 30A		3	4.5	mΩ
		V _{GS} = 4.5V, I _D = 20A		4.5	6.5	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 20A		0.8	1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		2.5		Ω
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		2250		pF
Output Capacitance	C _{OSS}			290		
Reverse Transfer Capacitance	C _{RSS}			230		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 15V, I _D = 30A		41		nC
Gate to Source Charge	Q _{GS}			9		
Gate to Drain Charge	Q _{GD}			10		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 15V, I _D = 30A, R _G = 3Ω		9		ns
Rise Time	T _r			14		
Turn-off Delay Time	T _{D(OFF)}			35		
Fall Time	T _f			11		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=100A/us		12		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us		2.6		nC



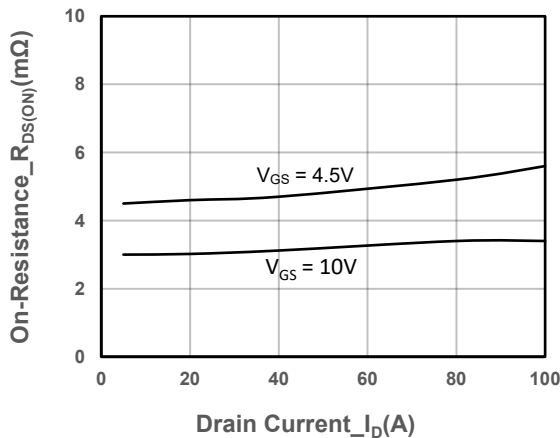
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



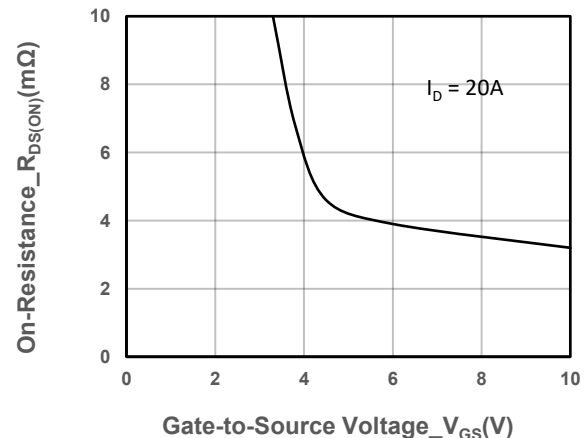
Output Characteristics



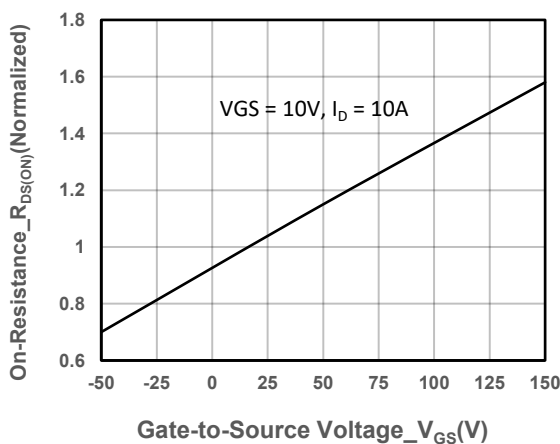
Transfer Characteristics



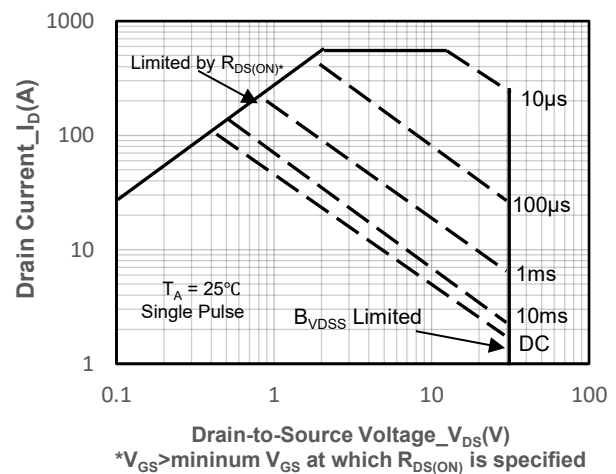
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

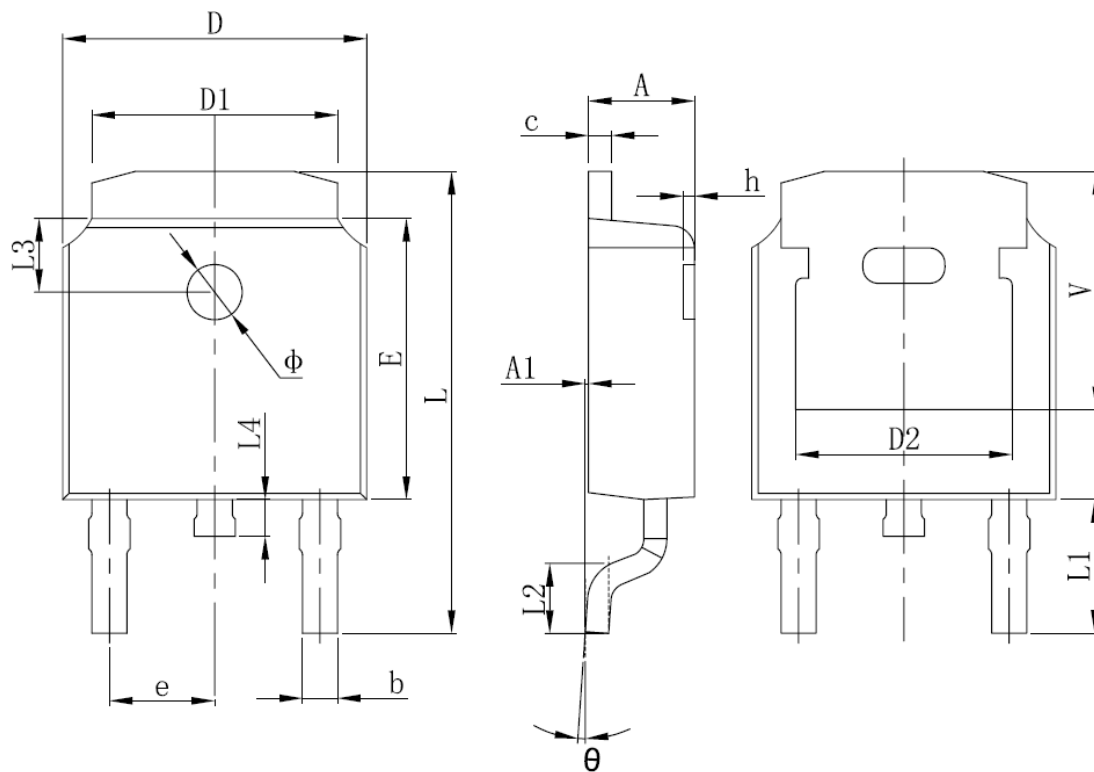


On-Resistance vs. Junction Temperature



Safe Operating Area vs. 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.	



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