



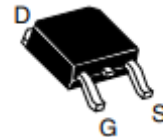
SSC8239GT8

P-Channel Enhanced MOSFET

➤ Features

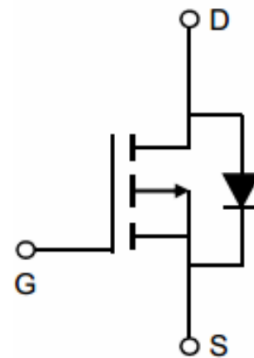
VDS	VGS	RDSON Typ.	ID
-30V	±20V	5.3mR@-10V	-94A
		6.8mR@-4.5V	

➤ Pin Configuration



➤ Description

This device is P-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.

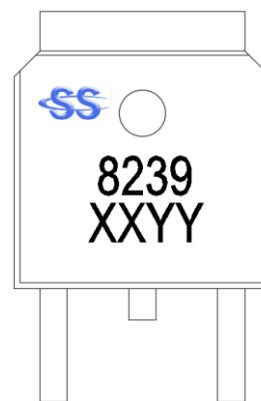


➤ Applications

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

➤ Ordering Information

Device	Package	Shipping
SSC8239GT8	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	-30	V	
V_{GSS}	Gate-to-Source Voltage	± 20	V	
I_D	Continuous Drain Current ^d	$T_C=25^{\circ}\text{C}$	-94	A
		$T_C=100^{\circ}\text{C}$	-50	
I_{DSM}	Continuous Drain Current ^a	$T_A=25^{\circ}\text{C}$	-29	A
		$T_A=70^{\circ}\text{C}$	-21	
I_{DM}	Pulsed Drain Current ^b	-375	A	
P_D	Power Dissipation ^c	$T_C=25^{\circ}\text{C}$	83	W
		$T_C=100^{\circ}\text{C}$	33	
P_{DSM}	Power Dissipation ^a	$T_A=25^{\circ}\text{C}$	8.3	W
		$T_A=70^{\circ}\text{C}$	5.3	
I_{AS}	Avalanche Current ^b L=0.5mH Single Pulse	30	A	
E_{AS}	Avalanche Energy ^b L=0.5mH Single Pulse	225	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	1.5	

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.

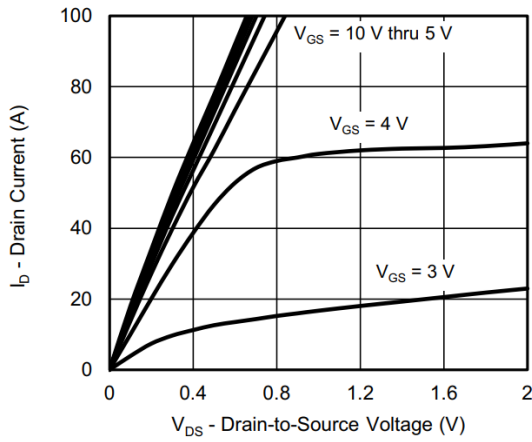


➤ **Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

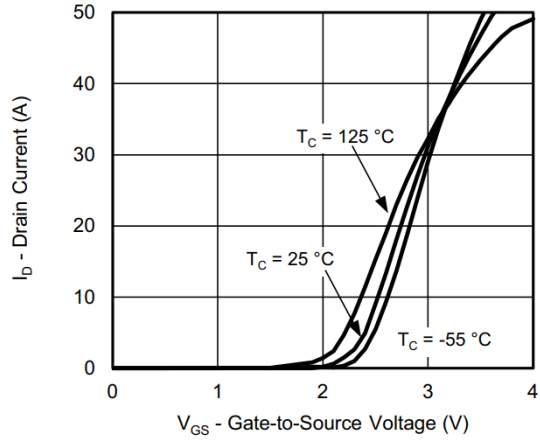
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.2	-2	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-20A$		5.3	7	mR
		$V_{GS}=-4.5V, I_D=-15A$		6.8	9.5	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$			-1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
G_{FS}	Transconductance	$V_{DS}=-5V, I_D=-5A$		25		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=-10A$		-0.77	-1.3	V
R_g	Gate Resistance	$V_{GS}=0V, f=1MHz$		3.5	4.5	R
C_{iss}	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$		4560		pF
C_{oss}	Output Capacitance			530		
C_{rss}	Reverse Transfer Capacitance			140		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=-10V, R_L=1.5R$ $V_{DS}=-15V, R_G=1R$		21		ns
T_r	Rise time			26		
$T_{D(OFF)}$	Turn-off delay time			35		
T_f	Fall time			18		
Q_G	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-15V$ $I_D=-20A$		74		nC
Q_{GS}	Gate Source Charge			12		
Q_{GD}	Gate Drain Charge			11		
T_{rr}	Diode Recovery Time	$I_F=-20A, di/dt=100A/\mu s$		45		ns
Q_{rr}	Diode Recovery Charge	$I_F=-20A, di/dt=100A/\mu s$		20		nC



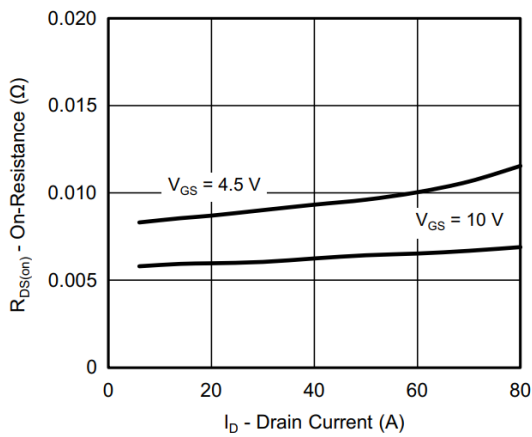
➤ **Typical Characteristics** ($T_A=25^\circ\text{C}$ unless otherwise noted)



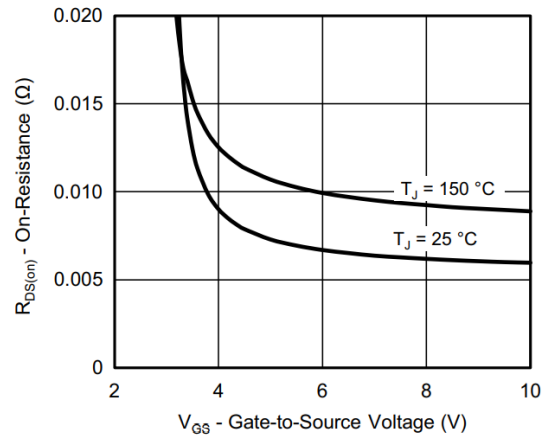
Output Characteristics



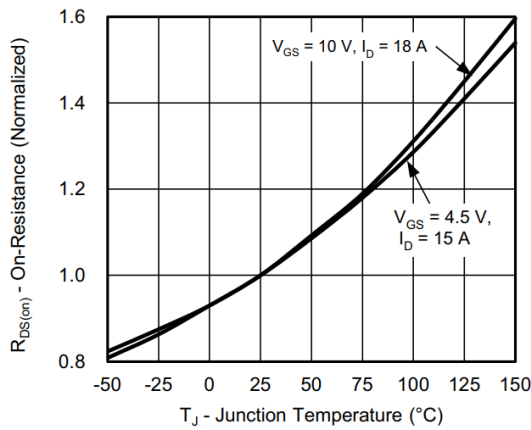
Transfer Characteristics



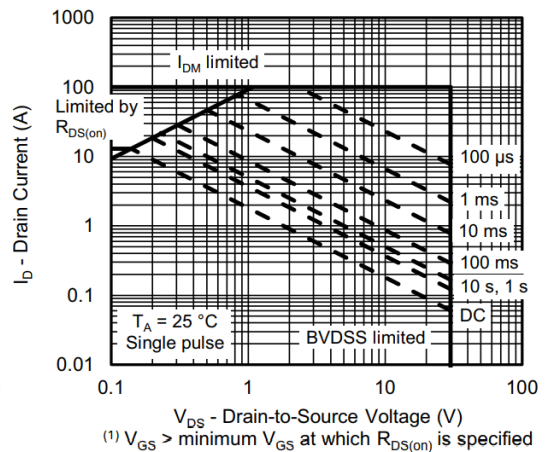
On-Resistance vs. Drain Current and Gate



On-Resistance vs. Gate-to-Source Voltage

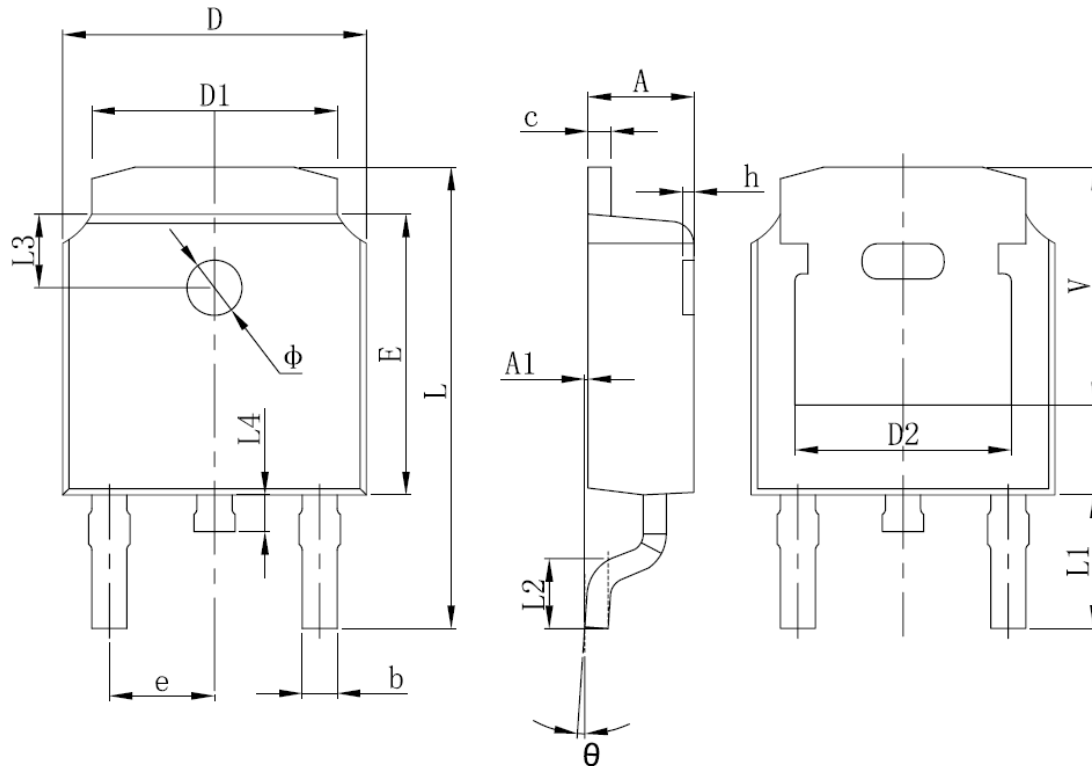


On-Resistance vs. Junction Temperature



Safe Operating Area, Junction-to-Ambient

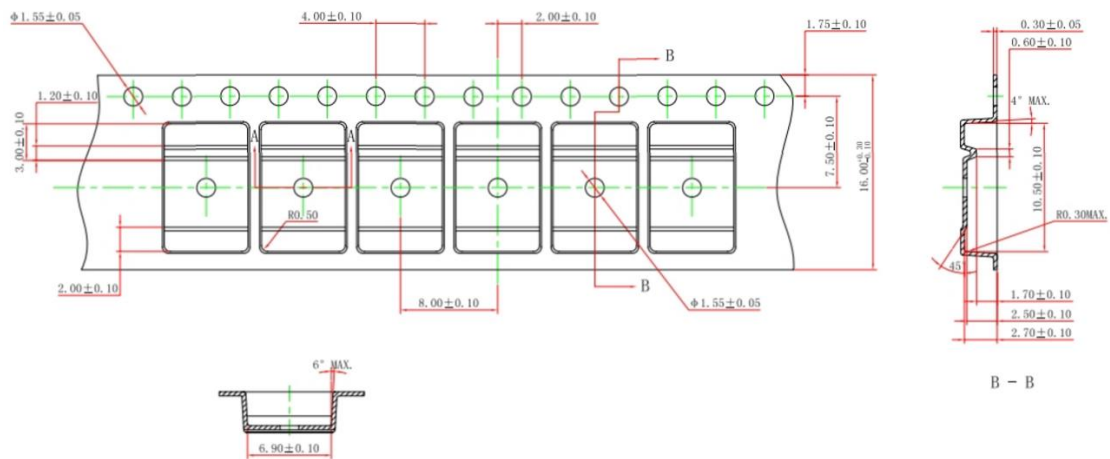
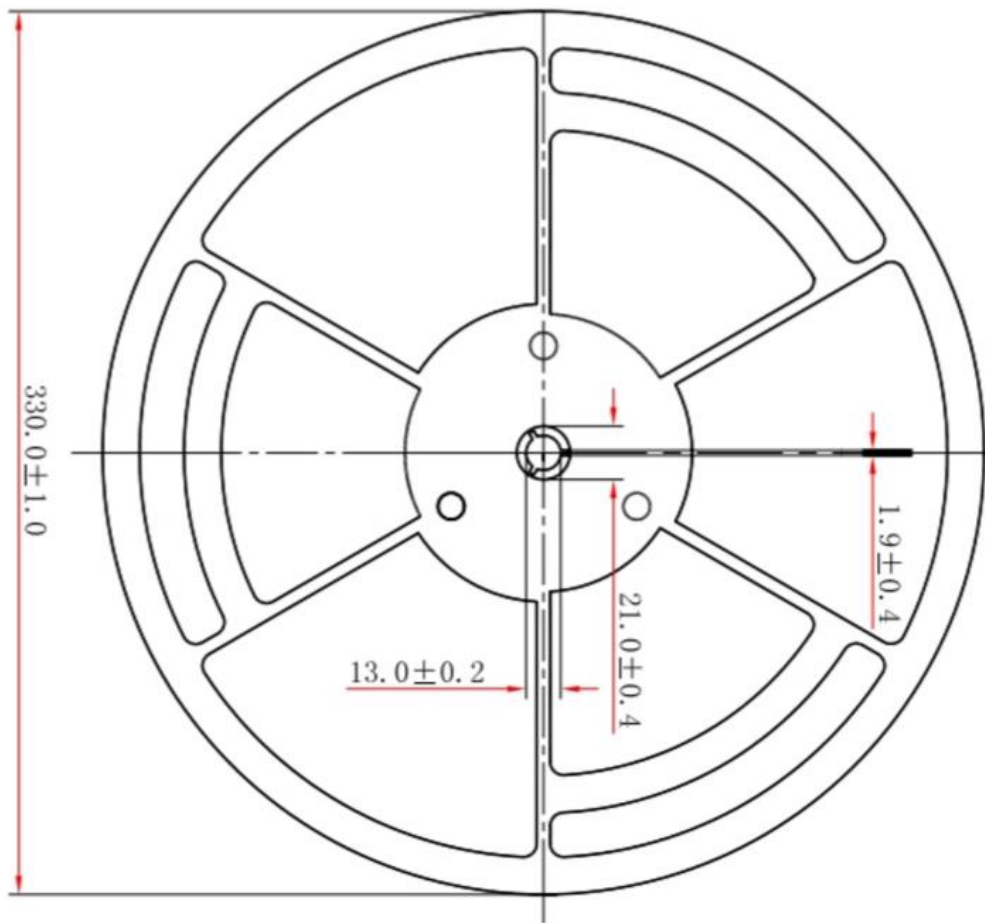
(1) $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

➤ 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
phi	1.100	1.300	0.043	0.051
theta	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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