



SSCV3NF500GT8

N-Channel Enhancement Mode Power MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
500V	$\pm 30V$	$2.5\Omega @ 10V$	3A

➤ Description

- This device is N-Channel enhancement MOSFET.
- Fast Switching.
- Improved dv/dt Capability.

100% UIS + ΔV_{DS} + R_g Tested!

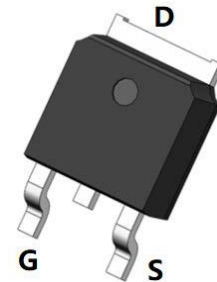
➤ Applications

- Switch Mode Power Supply
- Uninterruptible Power Supply (UPS)
- Power Factor Correction(PFC)

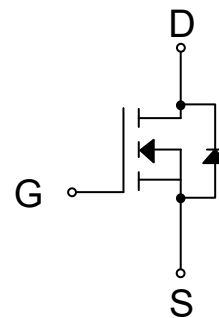
➤ Ordering Information

Device	Package	Shipping
SSCV3NF500GT8	TO252	2500/Reel

➤ Pin Configuration



TO252 (Top View)



Pin Configuration



Marking

(XXYY: Internal Traceability Code)



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

Symbol	Parameter		Ratings	Unit
V_{DS}	Drain-to-Source Voltage		500	V
V_{GS}	Gate-to-Source Voltage		± 30	V
I_D	Continuous Drain Current	$T_J=25^{\circ}\text{C}$	3	A
		$T_J=100^{\circ}\text{C}$	1.8	
I_{DM}	Pulsed Drain Current ^a		12	A
E_{AS}	Single Pulsed Avalanche Energy		61	mJ
P_D	Power Dissipation, $T_J=25^{\circ}\text{C}$		13.7	W
T_{STG} / T_J	Junction & Storage Temperature Range		-55 to 150	$^{\circ}\text{C}$

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

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ^b	62	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	9.1	

Note:

a. Repetitive Rating: Pulsed width limited by maximum junction temperature.

b. $R_{\theta JA}$ is measured with the device mounted on a minimum recommended pad of 2oz copper FR4 PCB.



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➤ Electrical Characteristics (T_J=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	500			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 500V, V _{GS} = 0V			1.0	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2		4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1.5A		2.5	3	Ω
Input Capacitance	C _{ISS}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz		267		pF
Output Capacitance	C _{OSS}			31.5		
Reverse Transfer Capacitance	C _{RSS}			2.5		
Total Gate Charge	Q _G	V _{GS} = 0 to 10V, V _{DS} = 400V, I _D = 3A		11.9		nC
Gate to Source Charge	Q _{GS}			3.7		
Gate to Drain Charge	Q _{GD}			4.5		
Turn-on Delay Time	T _{D(ON)}	V _{DS} = 250V, I _D = 3A, R _G = 25Ω		6		ns
Rise Time	T _r			14		
Turn-off Delay Time	T _{D(OFF)}			15		
Fall Time	T _f			10		
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 3A			1.4	V
Body Diode Reverse Recovery Time	T _{rr}	I _F = 3A, di/dt = 100A/us VR=300V		75		ns
Body Diode Reverse Recovery Charge	Q _{rr}			140		μC



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

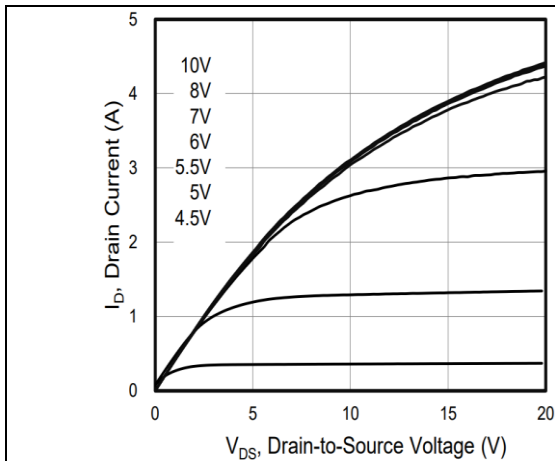


Figure 1: Output Characteristics

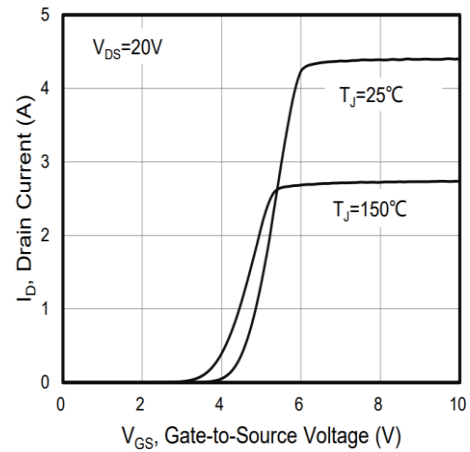


Figure 2: Transfer Characteristics

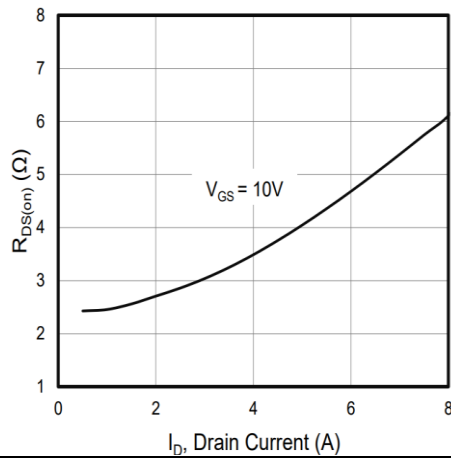


Figure 3: On-Resistance vs Drain Current

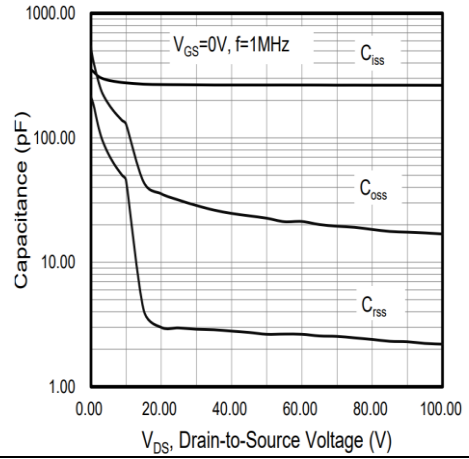


Figure 4: Capacitance

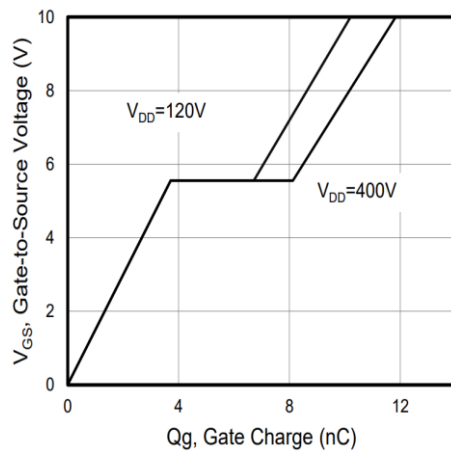


Figure 5: Gate Charge

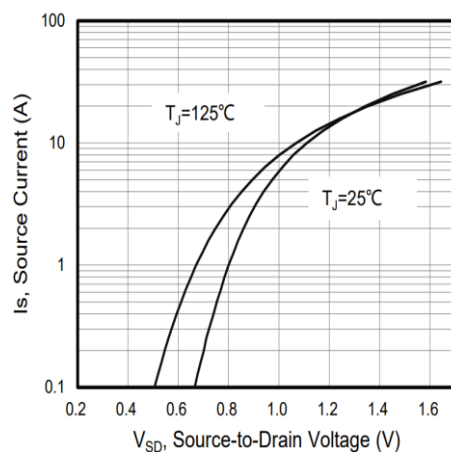


Figure 6: Body Diode Forward Voltage



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

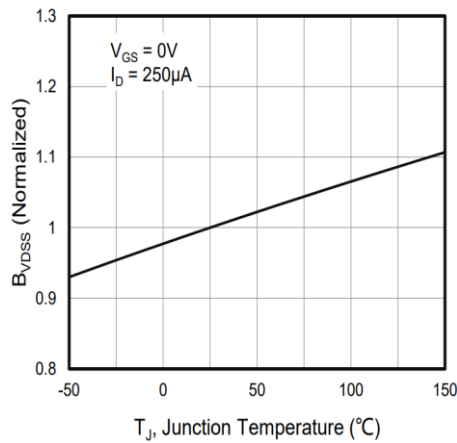


Figure 7: Breakdown Voltage vs Junction Temperature

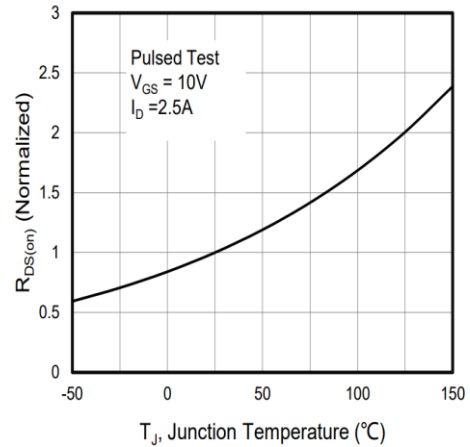


Figure 8: On-Resistance vs Temperature

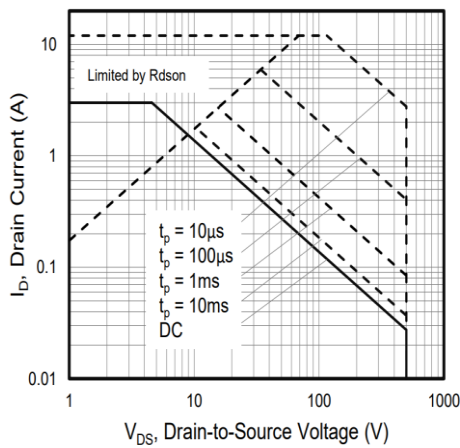


Figure 9: Maximum Safe Operating Area

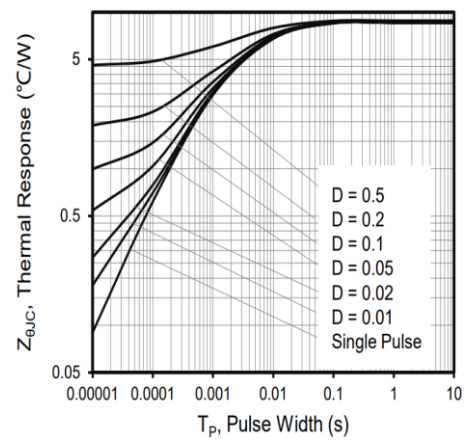
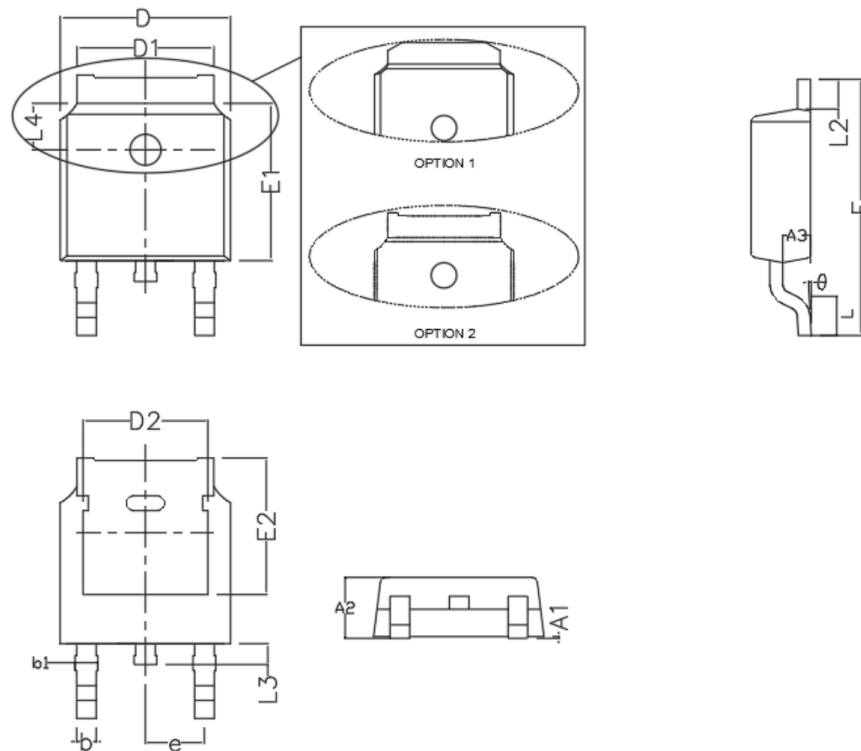


Figure 10: Normalized Maximum Transient Thermal Impedance

➤ Package Information

TO252



Symbol	MILL IMETER			Symbol	MILL IMETER		
	Min	Nom	Max		Min	Nom	Max
A1	0.000	/	0.200	E1	5.800	6.100	6.400
A2	2.100	2.300	2.500	E2	5.100	5.450	5.600
A3	0.900	1.040	1.170	e	2.286TYP		
b	0.600	0.762	0.910	L	1.270	1.500	2.032
b1	0.680	0.840	1.145	L2	0.900	1.100	1.270
D	6.300	6.600	6.900	L3	0.600	0.800	1.000
D1	4.950	5.330	5.700	L4	1.600	1.800	2.000
D2	4.315	4.830	5.230	θ	0°	/	10°
E	9.395	10.100	10.700				



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