

PRODUCT CHARACTERISTICS

V_{DSS}	1200V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	5.1 Ω
Q_g @typ	19.7nC
I_D	3A

APPLICATIONS

- * Motor Control
- * High Performance SMPS
- * DC/DC Converter

FEATURE

- * Low Gate Charge
- * Ultra-low $R_{DS(ON)}$

ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	RST3N120D	TO-252	2500 pieces/Reel

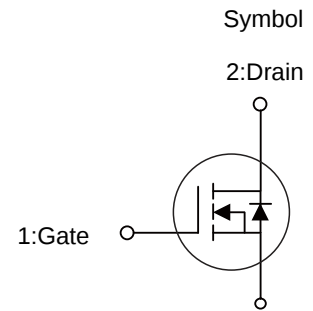
ABSOLUTE MAXIMUM RATINGS($T_A=25^\circ C$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	1200	V
Gate-Source Voltage	V_{GSS}	± 30	V
Drain Current Continuous(@ $V_{GS}=10V$, $T_A=25^\circ C$)	I_D	3	A
Drain Current Pulsed	I_{DM}	12	A
Avalanche Energy *	E_{AS}	30	mJ
Power Dissipation	P_D	100	W
Junction Temperature	T_J	+150	$^\circ C$
Storage Temperature	T_{STG}	-55~ +150	$^\circ C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	1.25	$^\circ C/W$

Note: * EAS condition: $T_J=25^\circ C$, $V_{DD}=50V$, $V_G=10V$, $L=10mH$, $R_g=25\Omega$



■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V, I _D =250μA	1200	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =1200V, V _{GS} =0V	-	-	25	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{DS} =0V, V _{GS} =+30V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{DS} =0V, V _{GS} =-30V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =1.5A	-	5.1	6	Ω
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	3	-	5	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V ,f=1.0MHz	-	2.2	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =15V, I _D =1.5 A	-	5	-	S
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V f=1.0MHz	-	1006	-	pF
Output Capacitance	C _{oss}		-	59.8	-	pF
Reverse Transfer Capacitance	C _{rss}		-	2.2	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	I _D =3 A, V _{DS} =600V R _G =10Ω ,V _{GS} =10V	-	15	-	ns
Rise Time	t _r		-	19	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	25	-	ns
Fall Time	t _f		-	76	-	ns
Total Gate Charge	Q _g	I _D =3A, V _{DS} =600V V _{GS} =10V	-	19.7	-	nC
Gate to Source Charge	Q _{gs}		-	7.5	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	5.4	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _S		-	-	3	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	12	A
Diode Forward Voltage	V _{SD}	I _{SD} =3A, V _{GS} =0V	-	-	1.5	V
Reverse Recovery Time	t _{rr}	I _{SD} =3A, T _J =25 °C	-	526	-	ns
Reverse Recovery Charge	Q _{rr}	dI /dt=100A/μs	-	2000	-	nC

TYPICAL CHARACTERISTICS

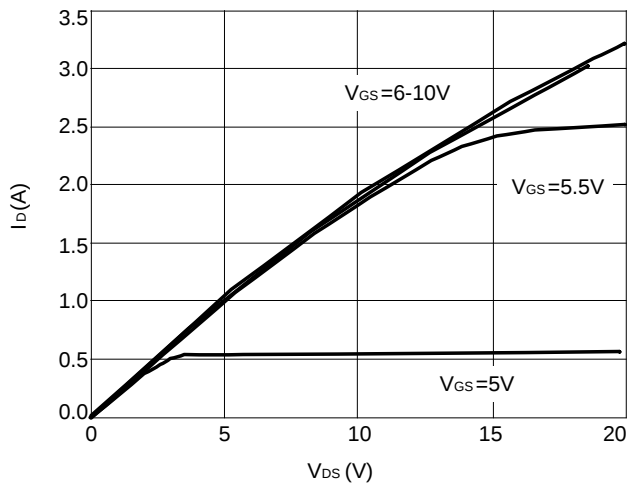


Figure 1: Output Characteristics

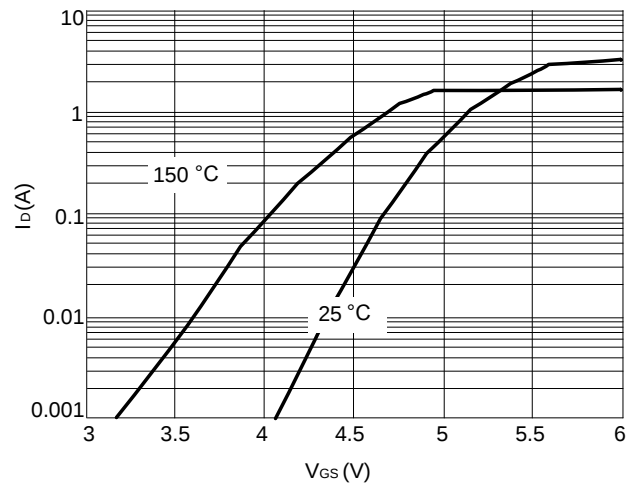


Figure 2: Transfer Characteristics

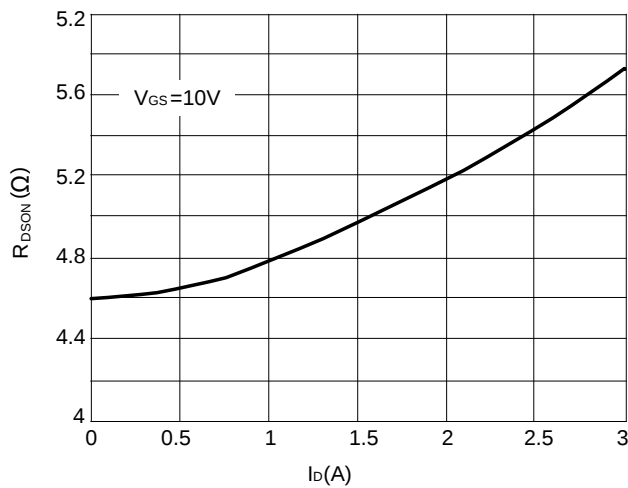


Figure 3: $R_{DS(ON)}$ vs. Drain Current

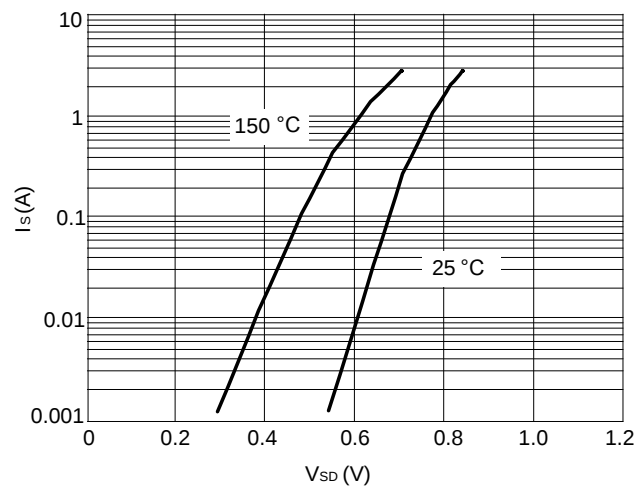


Figure 4: Body Diode Characteristics

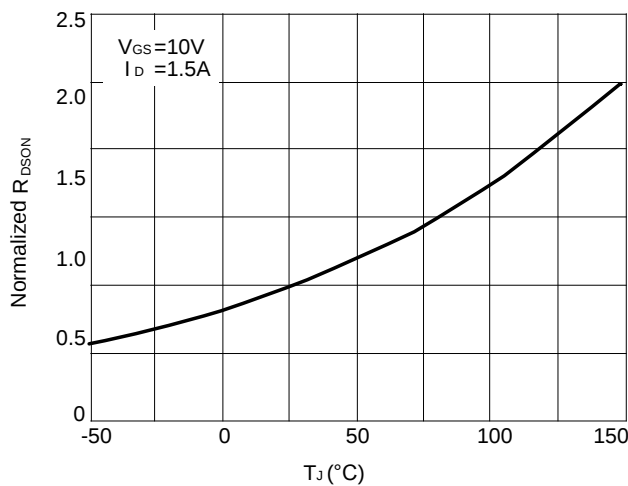


Figure 5: $R_{DS(ON)}$ vs. Junction Temperature

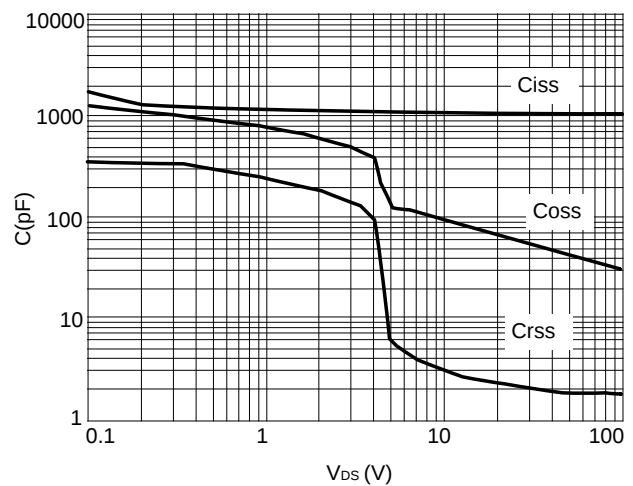


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

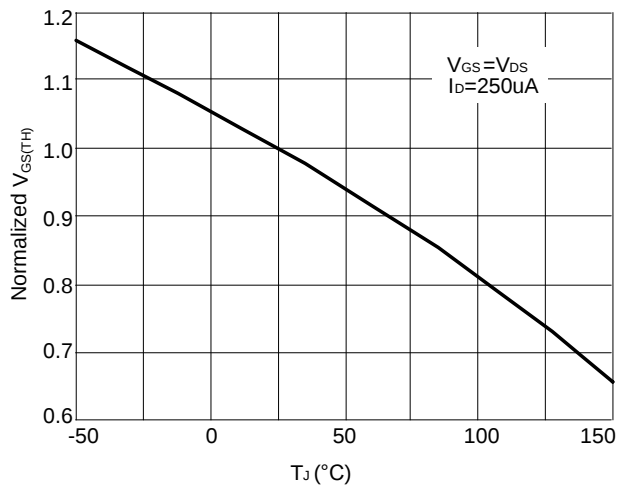


Figure 7: Theshold Voltage vs. Junction Temperature

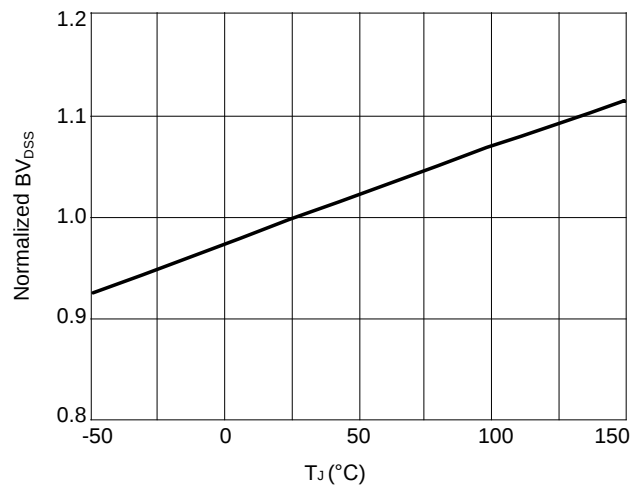


Figure 8: Breakdown Voltage vs. Junction Temperature

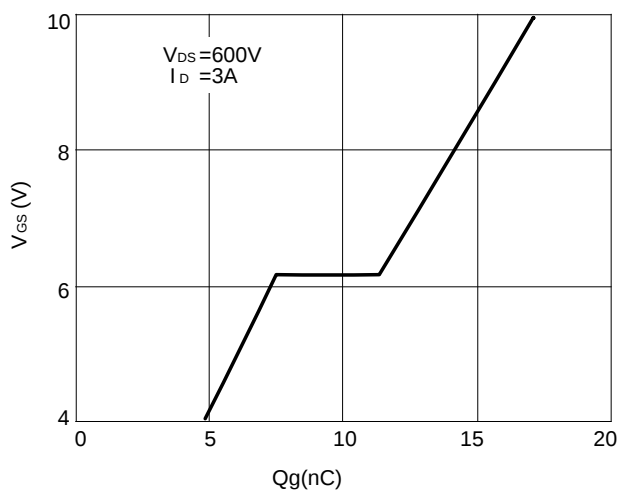


Figure 9: Gate Charge Characteristics

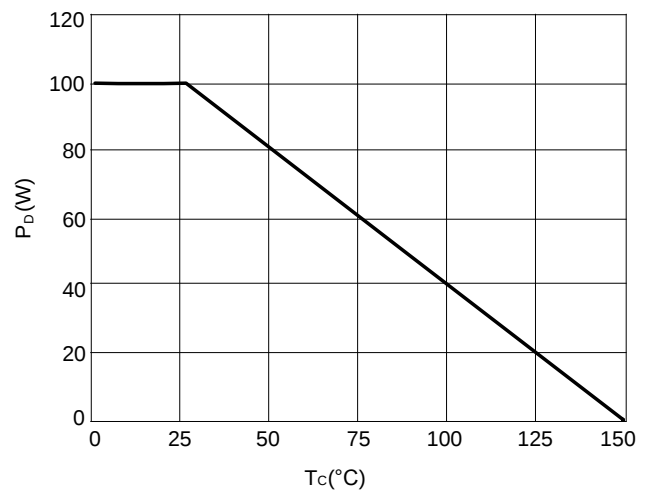


Figure 10: Power De-rating

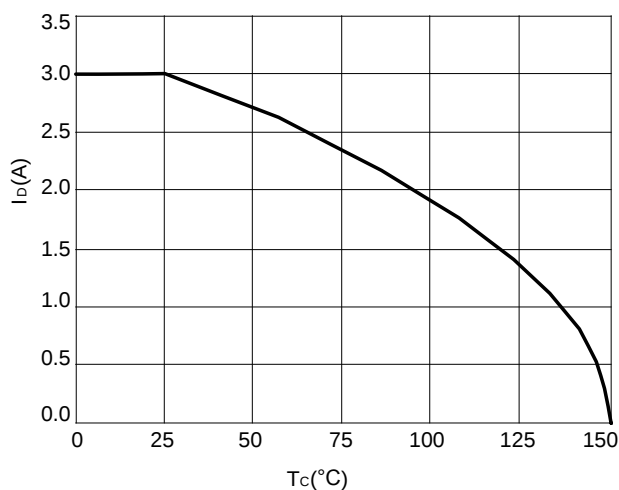


Figure 11: Current De-rating

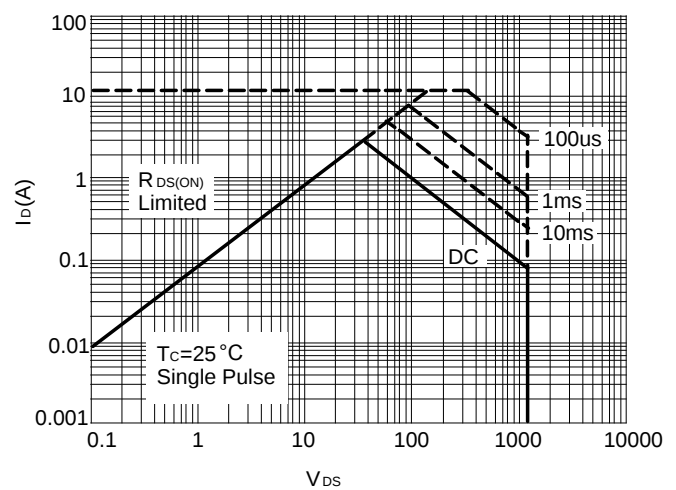


Figure 12: Safe Operating Area

■ TO-252 PACKAGE OUTLINE DIMENSIONS

