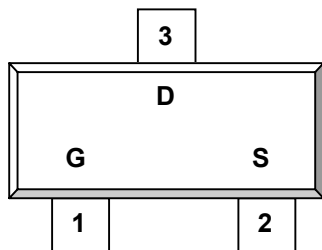


**DESCRIPTION**

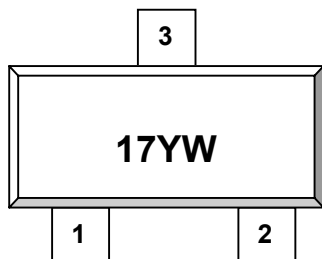
ST2317S23RG is the P-Channel logic enhancement mode power field effect transistor is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits where high-side switching and low in-line power loss are required in a very small outline surface mount package.

**PIN CONFIGURATION  
SOT-23-3L**


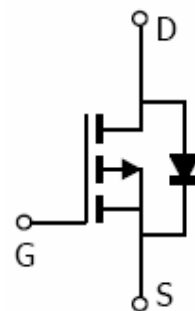
1.Gate 2.Source 3.Drain

**FEATURE**

- -40V/-5.0A,  $R_{DS(ON)} = 37m\Omega$  (Typ.) @VGS = -10V
- -40V/-3.0A,  $R_{DS(ON)} = 51m\Omega$  @VGS = -4.5V
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

**PART MARKING  
SOT-23-3L**


Y: Year Code W: Week Code



**ST2317S23RG**

P Channel Enhancement Mode MOSFET

**-5.0A****ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C Unless otherwise noted )

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	-40	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current (T <sub>J</sub> =150°C)	I <sub>D</sub>	T <sub>A</sub> =25°C -5.0	A
		T <sub>A</sub> =70°C -3.8	
Pulsed Drain Current	I <sub>DM</sub>	-28	A
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	3.0	A
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> =25°C 2.0	W
		T <sub>A</sub> =70°C 0.81	
Operation Junction Temperature	T <sub>J</sub>	-55/150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	105	°C/W



**ST2317S23RG**



P Channel Enhancement Mode MOSFET

-5.0A

**ELECTRICAL CHARACTERISTICS** ( Ta = 25°C Unless otherwise noted )

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-10\mu A$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1		-2.5	V
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-40V, V_{GS}=0V$			-1	uA
		$V_{DS}=-36V, V_{GS}=0V$ $T_J=55^\circ C$			-5	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-5.0A$ $V_{GS}=-4.5V, I_D=-3.8A$		37 51	45 58	mΩ
Forward Transconductance	$g_{fs}$	$V_{DS}=-15V, I_D=-3.0A$		17		S
Diode Forward Voltage	$V_{SD}$	$I_S=-1.0A, V_{GS}=0V$			-1.0	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=-20V$ $V_{GS}=-15V$ $I_D=-5.0A$		18	22	nC
Gate-Source Charge	$Q_{gs}$			8.5		
Gate-Drain Charge	$Q_{gd}$			3.0		
Input Capacitance	$C_{iss}$	$V_{DS}=-20V$ $V_{GS}=0V$ $F=1MHz$		950		pF
Output Capacitance	$C_{oss}$			95		
Reverse Transfer Capacitance	$C_{rss}$			75		
Turn-On Time	$t_{d(on)tr}$	$V_{DD}=-20V$ $R_L=3.3\Omega$ $V_{GEN}=3\Omega$ $V_{DS}=-20V$		8	20	nS
Turn-Off Time	$t_{d(off)tf}$			10	20	
				30	35	
				15	20	

**TYPICAL CHARACTERISTICS** (25°C Unless noted)

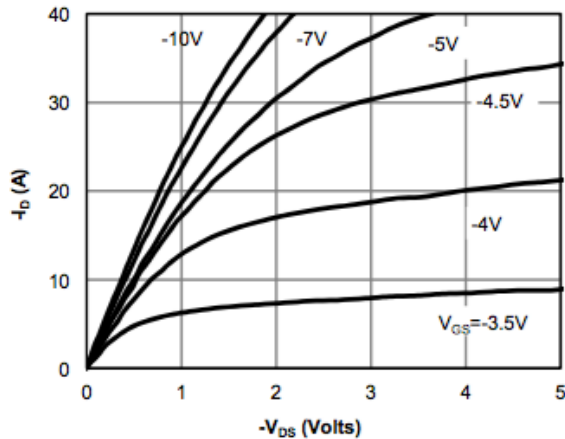


Fig 1: On-Region Characteristics (Note E)

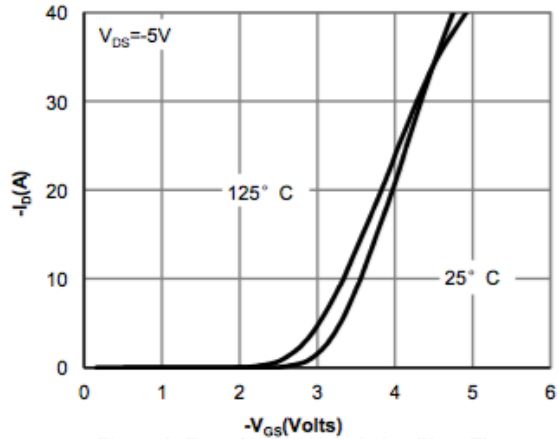


Figure 2: Transfer Characteristics (Note E)

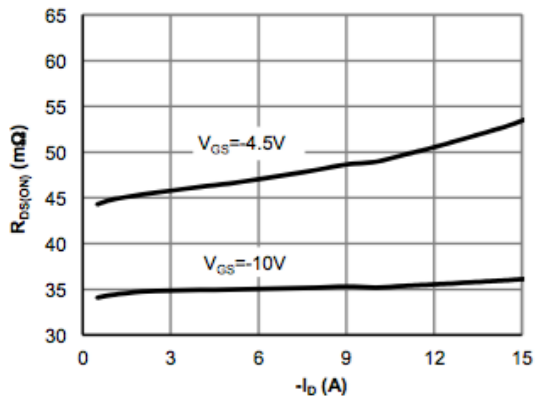


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

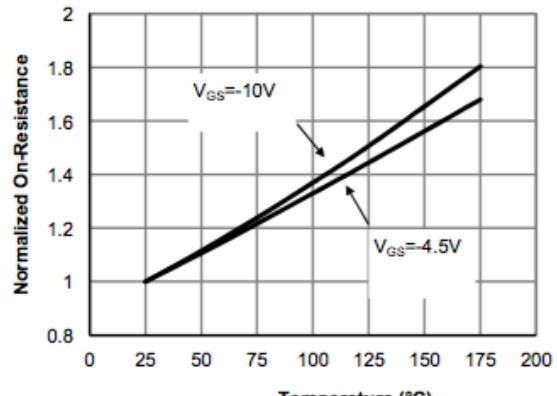


Figure 4: On-Resistance vs. Junction Temperature (Note E)

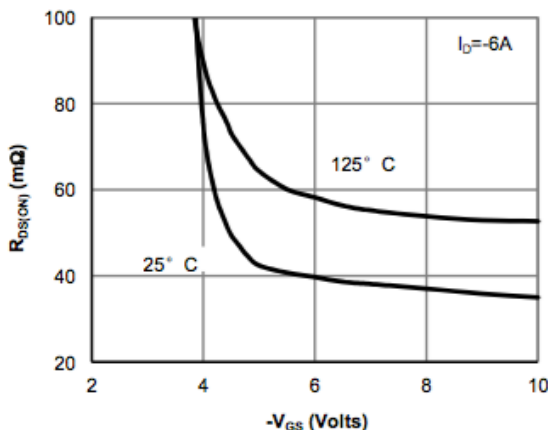


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

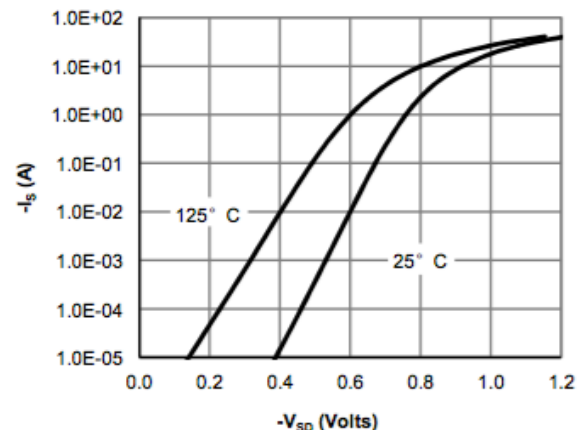


Figure 6: Body-Diode Characteristics (Note E)

**TYPICAL CHARACTERISTICS** (25°C Unless noted)

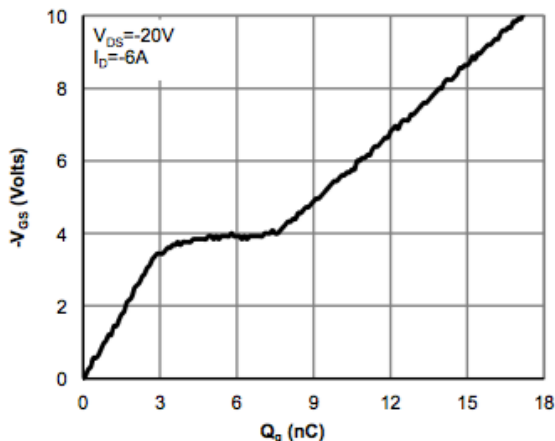


Figure 7: Gate-Charge Characteristics

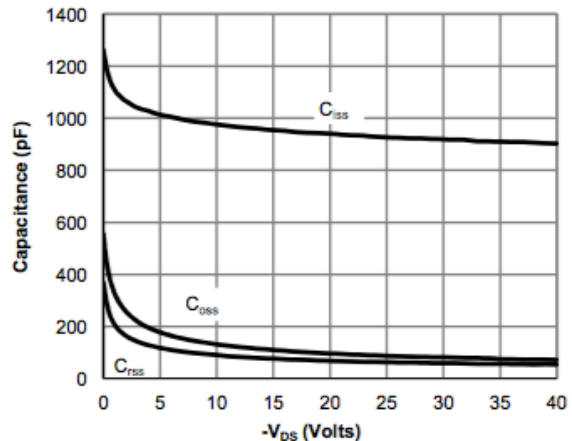


Figure 8: Capacitance Characteristics

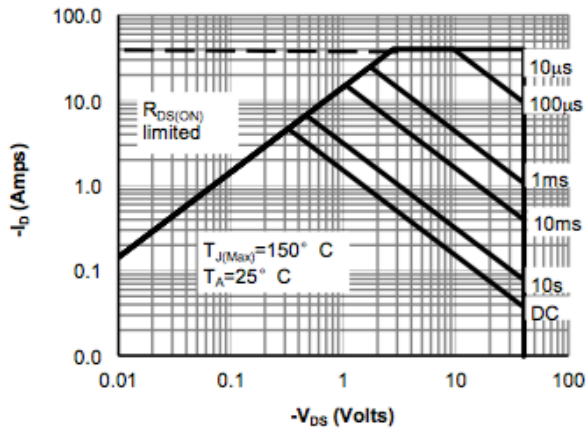


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

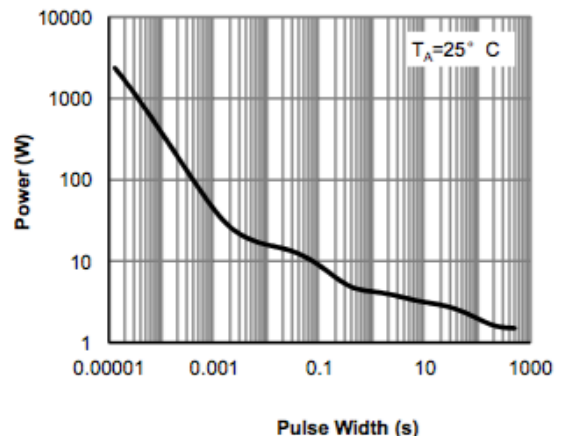


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

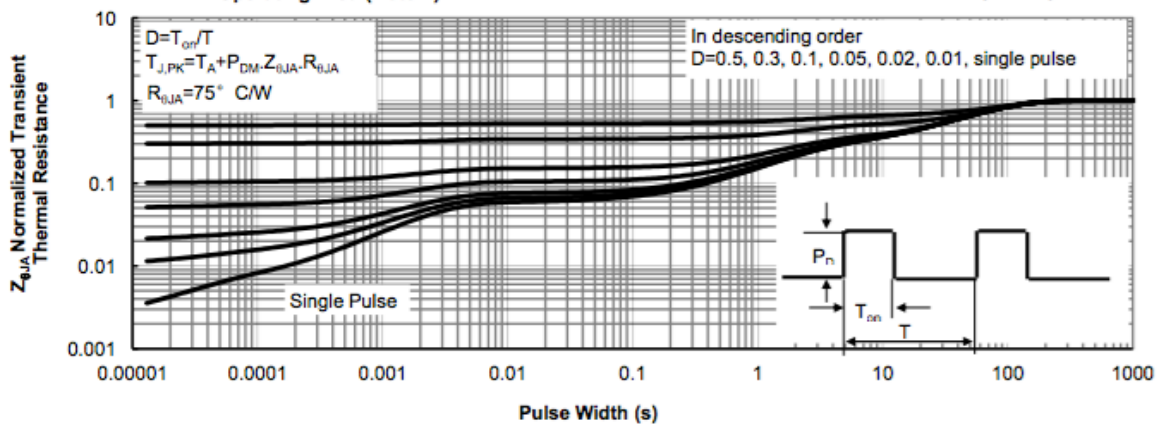
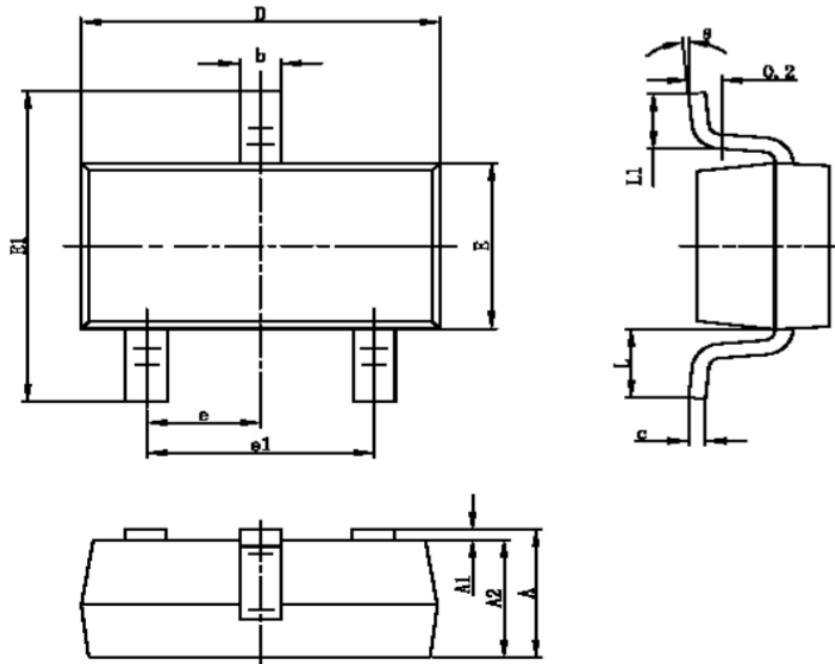


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)

**SOT-23-3L PACKAGE OUTLINE**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°