



#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-30V	85mΩ@-10V	-3.4A
	125mΩ@-4.5V	

#### Feature

- Trench Technology Power MOSFET
- Low  $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance

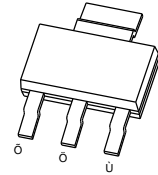
#### Application

- DC/DC Converter
- Power Management

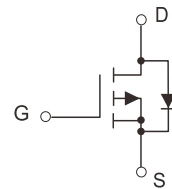
#### MARKING:



#### SOT-223



#### Schematic diagram



#### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	$V_{DS}$	-30	V
Gate - Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current <sup>1,5</sup>	$I_D$	-3.4	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	-12	A
Power Dissipation <sup>4,5</sup>	$P_D$	1.9	W
Thermal Resistance from Junction to Ambient <sup>5</sup>	$R_{\theta JA}$	65	$^\circ\text{C/W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

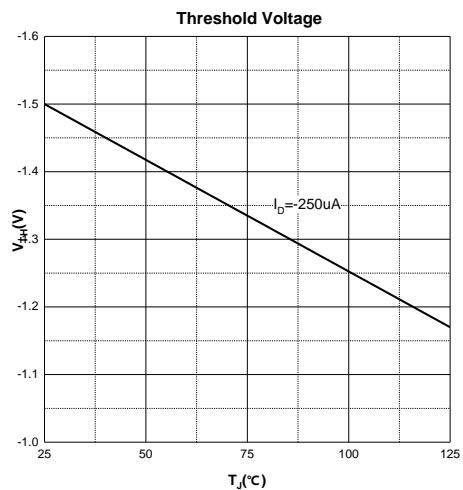
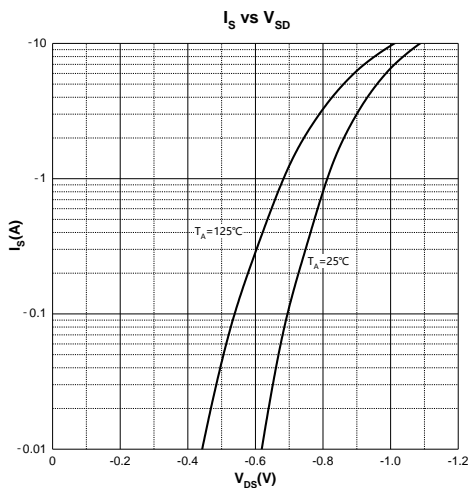
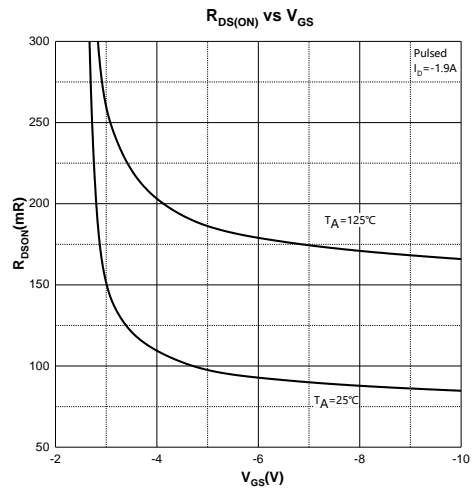
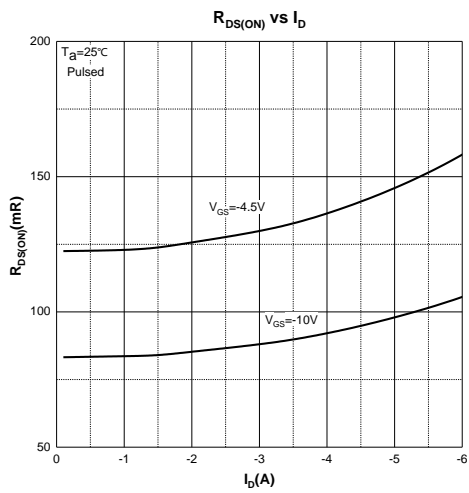
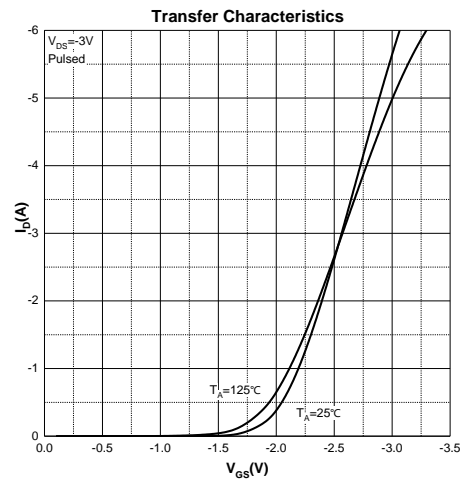
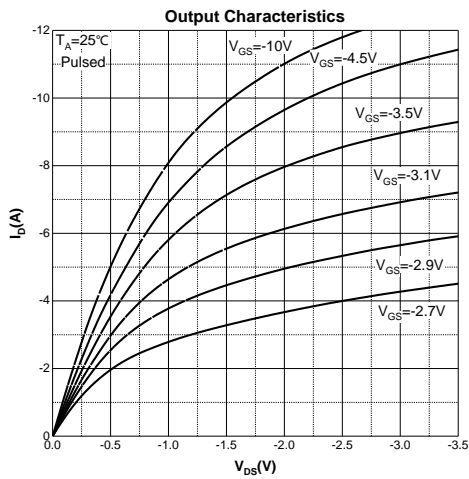
**MOSFET ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -24V, V_{GS} = 0V$			-1	$\mu A$
Gate - Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
<b>On Characteristics<sup>3</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-3.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -3.4A$		85	150	m $\Omega$
		$V_{GS} = -4.5V, I_D = -2.7A$		125	250	
Forward Transconductance	$g_{FS}$	$V_{DS} = -5V, I_D = -1.9A$	2			S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		266		pF
Output Capacitance	$C_{oss}$			37		
Reverse Transfer Capacitance	$C_{rss}$			25		
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	$V_{DS} = -15V, V_{GS} = -10V, I_D = -1.9A$		5.8		nC
Gate-source Charge	$Q_{gs}$			3.2		
Gate-drain Charge	$Q_{gd}$			0.9		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -15V, V_{GS} = -10V,$ $R_L = 7.5\Omega, R_G = 3\Omega$		6		ns
Turn-on Rise Time	$t_r$			4		
Turn-off Delay Time	$t_{d(off)}$			15		
Turn-off Fall Time	$t_f$			6		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$V_{GS} = 0V, I_S = -1.5A$			-1.2	V

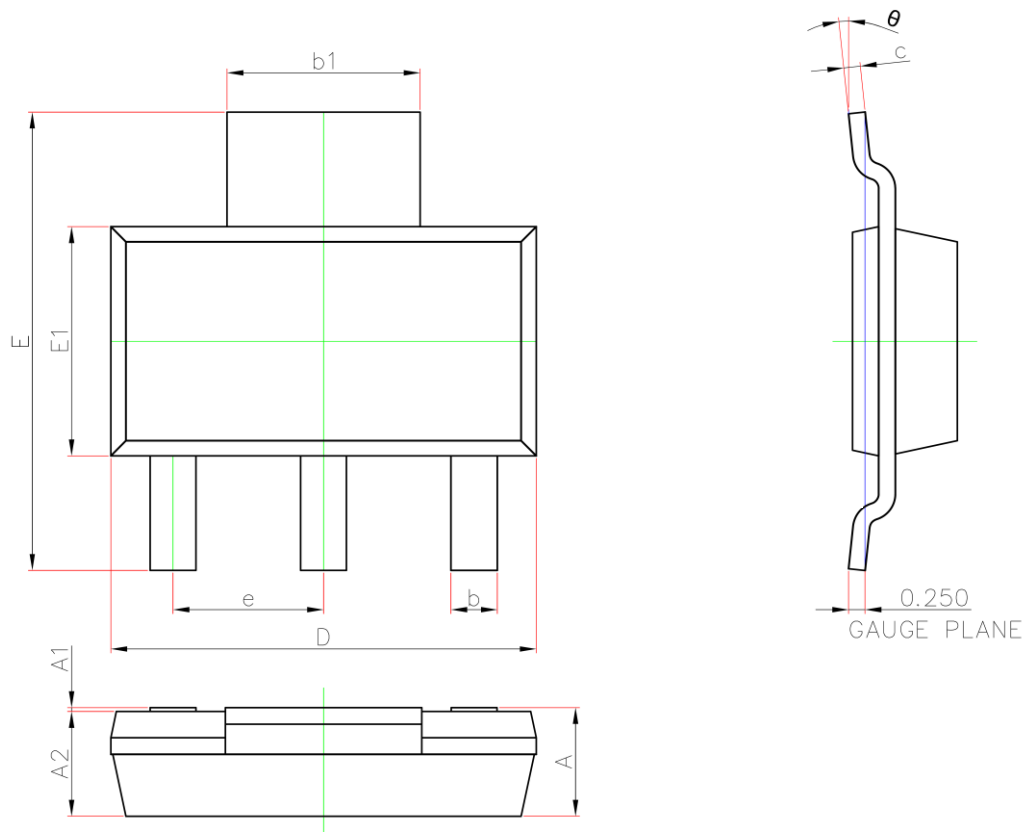
Notes :

- 1.The maximum current rating is limited by Package.
- 2.Pulse Test : Pulse Width  $\leq 10\mu s$ , duty cycle  $\leq 1\%$ .
- 3.Pulse Test : Pulse Width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- 4.The power dissipation  $P_D$  is limited by  $T_{J(MAX)} = 150^\circ\text{C}$ .
- 5.Device mounted on  $1\text{in}^2$  FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$ .

**Typical Characteristics**



## SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.800MAX		0.071MAX	
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.600	0.840	0.024	0.033
$b_1$	2.900	3.100	0.114	0.122
c	0.200	0.400	0.008	0.016
D	6.100	6.700	0.240	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300BSC		0.091BSC	
$\theta$	0°	10°	0°	10°