

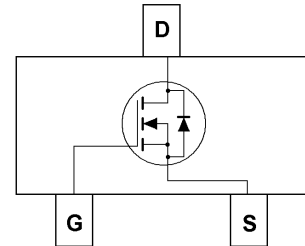
N-Channel Enhancement Mode MOSFET

Feature

- 30V/3.6A, $R_{DS(ON)} = 70\text{m}\Omega(\text{MAX}) @V_{GS} = 10\text{V}$.
 $R_{DS(ON)} = 100\text{m}\Omega(\text{MAX}) @V_{GS} = 4.5\text{V}$.
- Super High dense cell design for extremely low $R_{DS(ON)}$.
- Reliable and Rugged.
- SOT-23 for Surface Mount Package.



SOT-23



Applications

- Power Management
Portable Equipment and Battery Powered Systems.

Absolute Maximum Ratings $T_A=25^\circ\text{C}$ Unless Otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	3.6	A

Electrical Characteristics $T_A=25^\circ\text{C}$ Unless Otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ.	Max	Units
Off Characteristics						
Drain to Source Breakdown Voltage	BVDSS	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	30	-	-	V
Zero-Gate Voltage Drain Current	IDSS	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$	-	-	1	μA
Gate Body Leakage Current, Forward	IGSSF	$V_{GS}=20\text{V}, V_{DS}=0\text{V}$	-	-	100	nA
Gate Body Leakage Current, Reverse	IGSSR	$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$	-	-	-100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D=250\mu\text{A}$	1.1	-	2.2	V
Static Drain-source On-Resistance	RDS(ON)	$V_{GS} = 10\text{V}, I_D = 3.6\text{A}$	-	50	70	$\text{m}\Omega$
		$V_{GS} = 4.5\text{V}, I_D = 3.1\text{A}$	-	80	100	$\text{m}\Omega$
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	VSD	$V_{GS} = 0\text{V}, I_S = 1.0\text{A}$			1.2	V

Dynamic							
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V, I_D=2A$		8.5	12	nC	
Q_{gs}	Gate-Source Charge			1.1			
Q_{gd}	Gate-Drain Charge			1.8			
t_{on}	Turn-on Time	$V_{DD}=15V, I_D=2A, V_{GS}=10V, R_G=6\Omega$			40	ns	
$t_{d(ON)}$	Turn-on Delay time			11			
t_r	Turn-on Rise Time			17			
$T_d(off)$	Turn-off Delay Time			37			
t_f	Turn-off Fall Time			20			
t_{off}	Turn-off Time				60		

Typical Characteristics

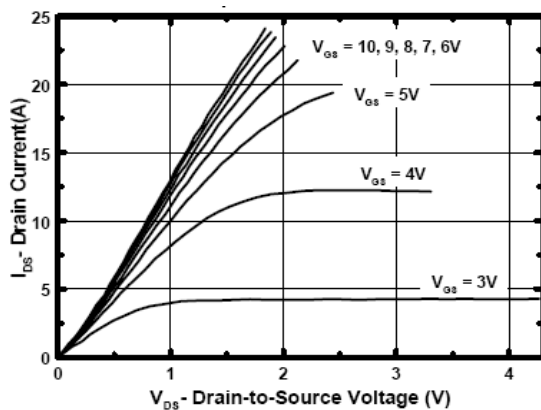


Figure 1. Output Characteristics

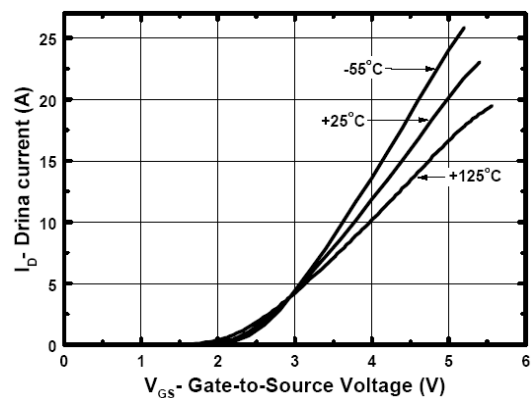


Figure 2. Transfer Characteristics

Typical Characteristics

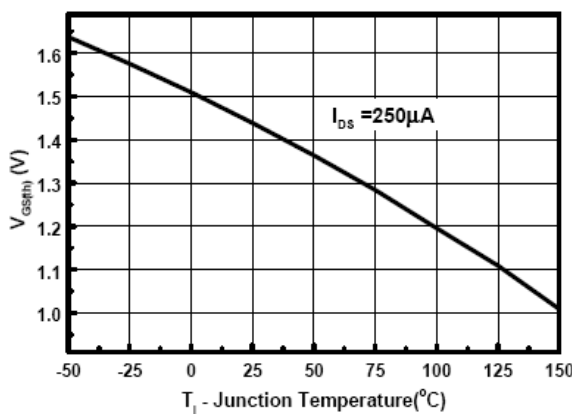


Figure 3. Gate Threshold Variation with Temperature

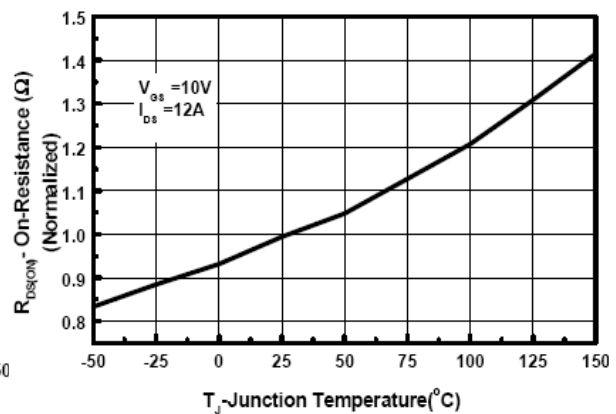


Figure 4. On-Resistance Variation with Temperature

NTR4503N

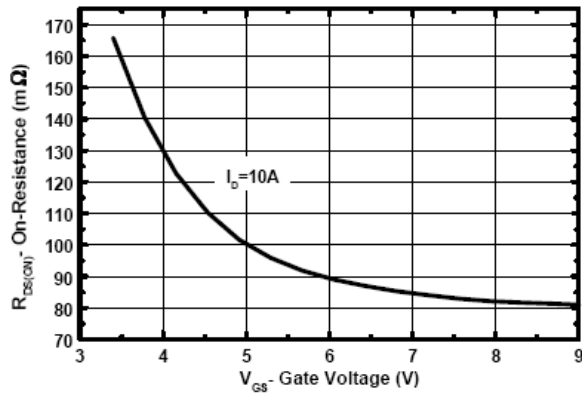


Figure 5. On-Resistance vs. Gate-to-Source Voltage

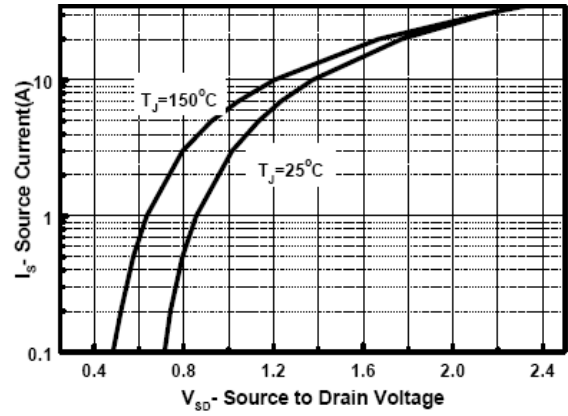
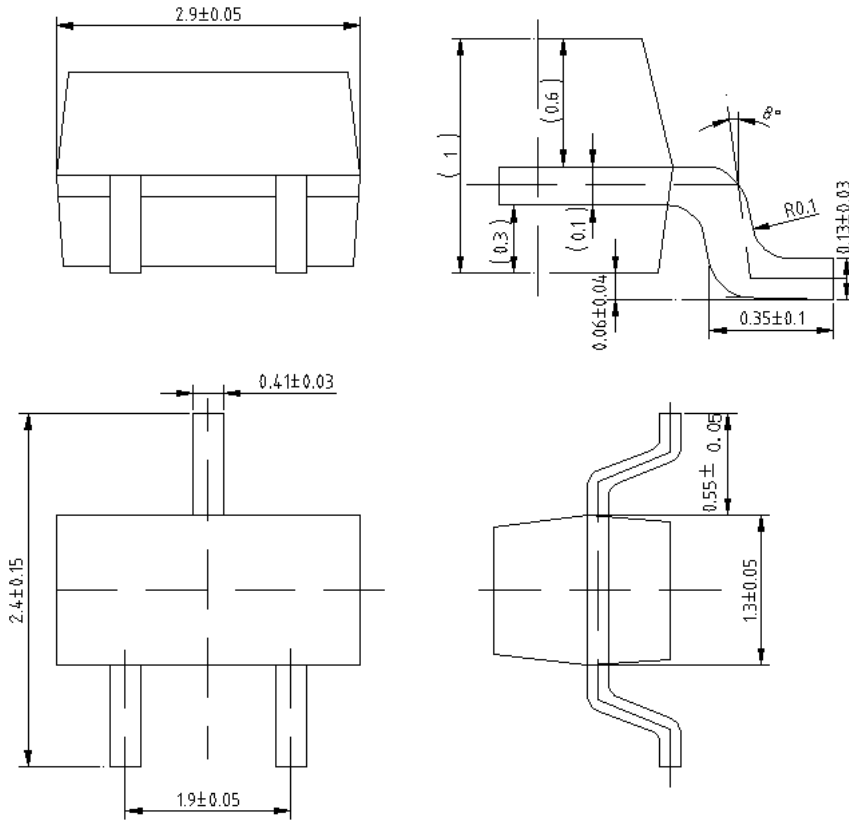


Figure 6. Source-Drain Diode Forward

Package Outline Dimensions (UNIT: mm)

SOT-23



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