

N-Channel Enhancement MOSFET

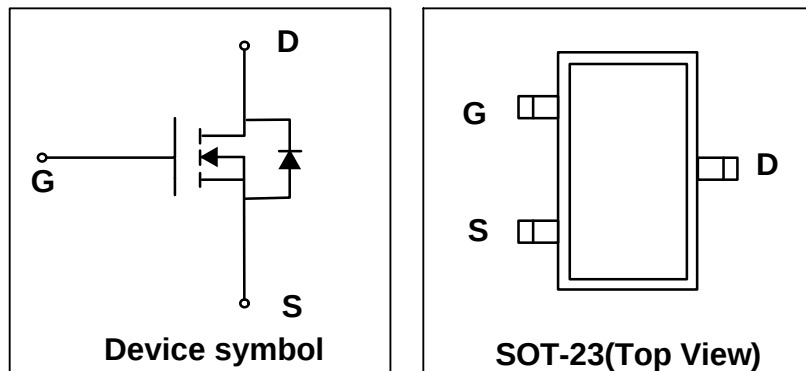
Features

- Way-on Small Signal MOSFETs
- $V_{DS} = 30V$, $I_D = 5.8A$
Typ. $R_{DS(on)} = 20m\Omega$ @ $V_{GS} = 10V$
Typ. $R_{DS(on)} = 25m\Omega$ @ $V_{GS} = 4.5V$
- Trench LV MOSFET Technology

Mechanical Characteristics

- SOT-23 Package
- Marking: Making Code
- RoHS Compliant & Halogen-Free

Schematic & PIN Configuration



Absolute Maximum Rating ($T_A = 25^\circ C$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A = 25^\circ C$	I_D	5.8	A
	$T_A = 100^\circ C$		3.5	
Pulsed Drain Current ¹		I_{DM}	30	A
Power Dissipation	$T_A = 25^\circ C$	P_D	1.2	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient ²	$R_{\theta JA}$	104	$^\circ C/W$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30	-	-	V
Zero Gate Voltage Drain Current	T _J =25°C	I _{DSS}	V _{DS} =30V, V _{GS} = 0V	-	-	1	μA
	T _J =100°C			-	-	100	
Gate-Body Leakage Current		I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Gate Threshold Voltage		V _{GS(th)}	V _{GS} = V _{DS} , I _D = 250μA	1	1.5	2	V
Drain-Source on-State Resistance ³		R _{DS(on)}	V _{GS} = 10V, I _D = 5.8A	-	20	26	mΩ
			V _{GS} = 4.5V, I _D = 4.8A	-	25	33	
Dynamic Characteristics ⁴							
Input Capacitance		C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	-	512	-	pF
Output Capacitance		C _{oss}		-	63	-	
Reverse Transfer Capacitance		C _{rss}		-	49	-	
Switching Characteristics ⁴							
Total Gate Charge		Q _g	V _{GS} = 10V, V _{DS} = 15V, I _D = 5.8A	-	10.5	-	nC
Gate-Source Charge		Q _{gs}		-	1.8	-	
Gate-Drain Charge		Q _{gd}		-	1.3	-	
Turn-on Delay Time		t _{d(on)}	V _{GS} = 10V, V _{DD} = 15V, I _D = 5.8A, R _G =3Ω	-	3.9	-	ns
Turn-on Rise Time		t _r		-	3.5	-	
Turn-off Delay Time		t _{d(off)}		-	13	-	
Turn- off Fall Time		t _f		-	3	-	
Source-Drain Diode Characteristics							
Body Diode Voltage ³		V _{SD}	I _S =1A, V _{GS} = 0V	-	-	1.2	V
Continuous Source Current		I _S	-	-	-	5.8	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}\text{C}$.
2. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

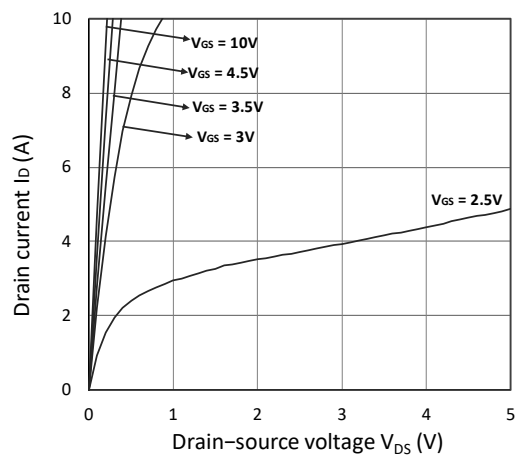


Figure 1. Output Characteristics

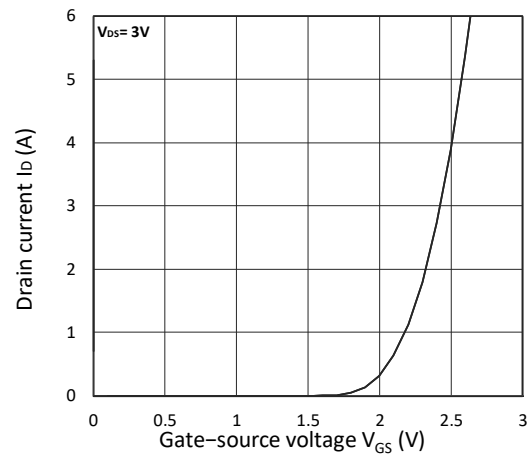


Figure 2. Transfer Characteristics

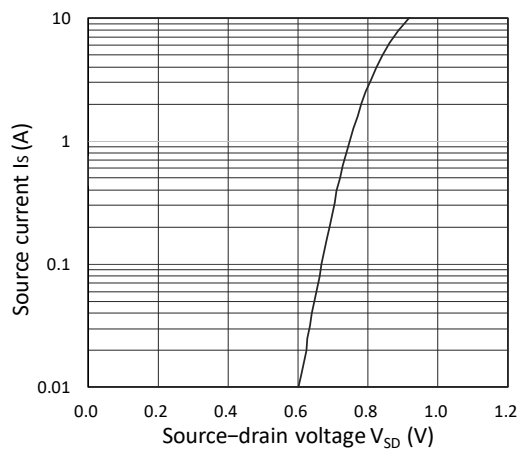
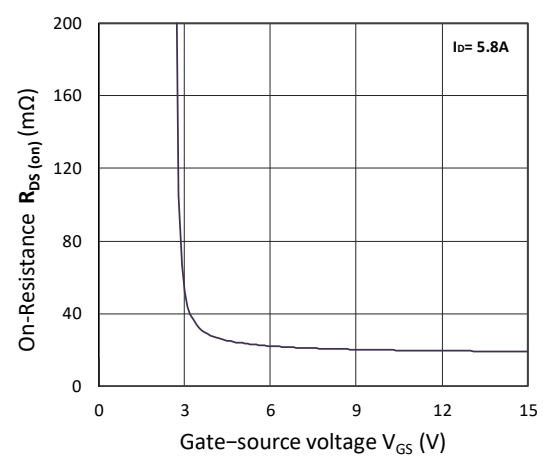
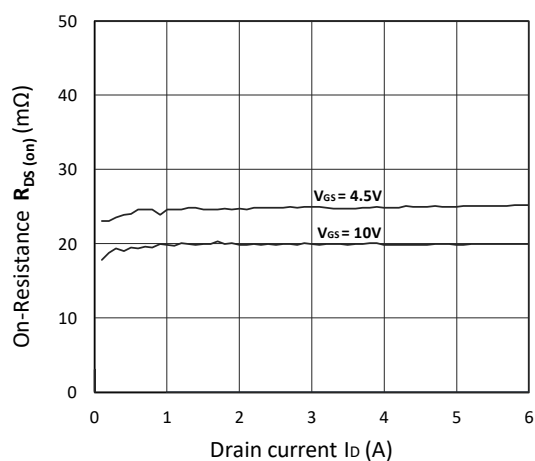
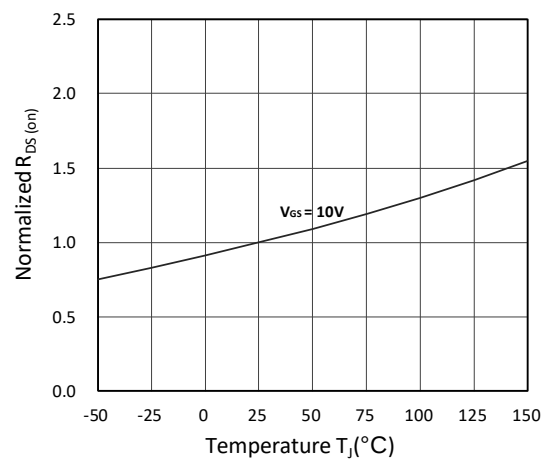


Figure 3. Forward Characteristics of Reverse

Figure 4. $R_{DS(ON)}$ vs. V_{GS} Figure 5. $R_{DS(ON)}$ vs. I_D Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

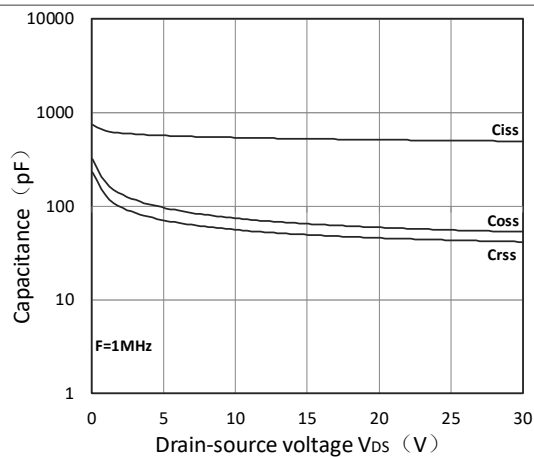


Figure 7. Capacitance Characteristics

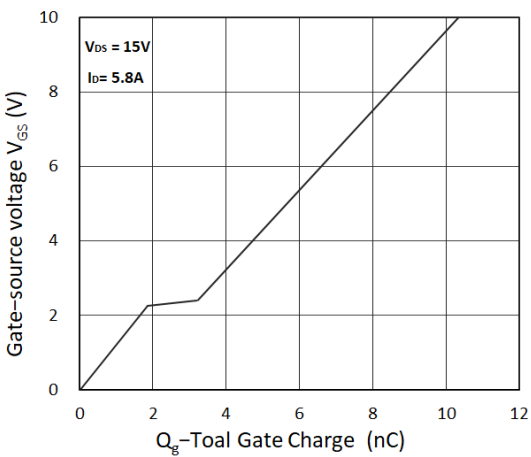
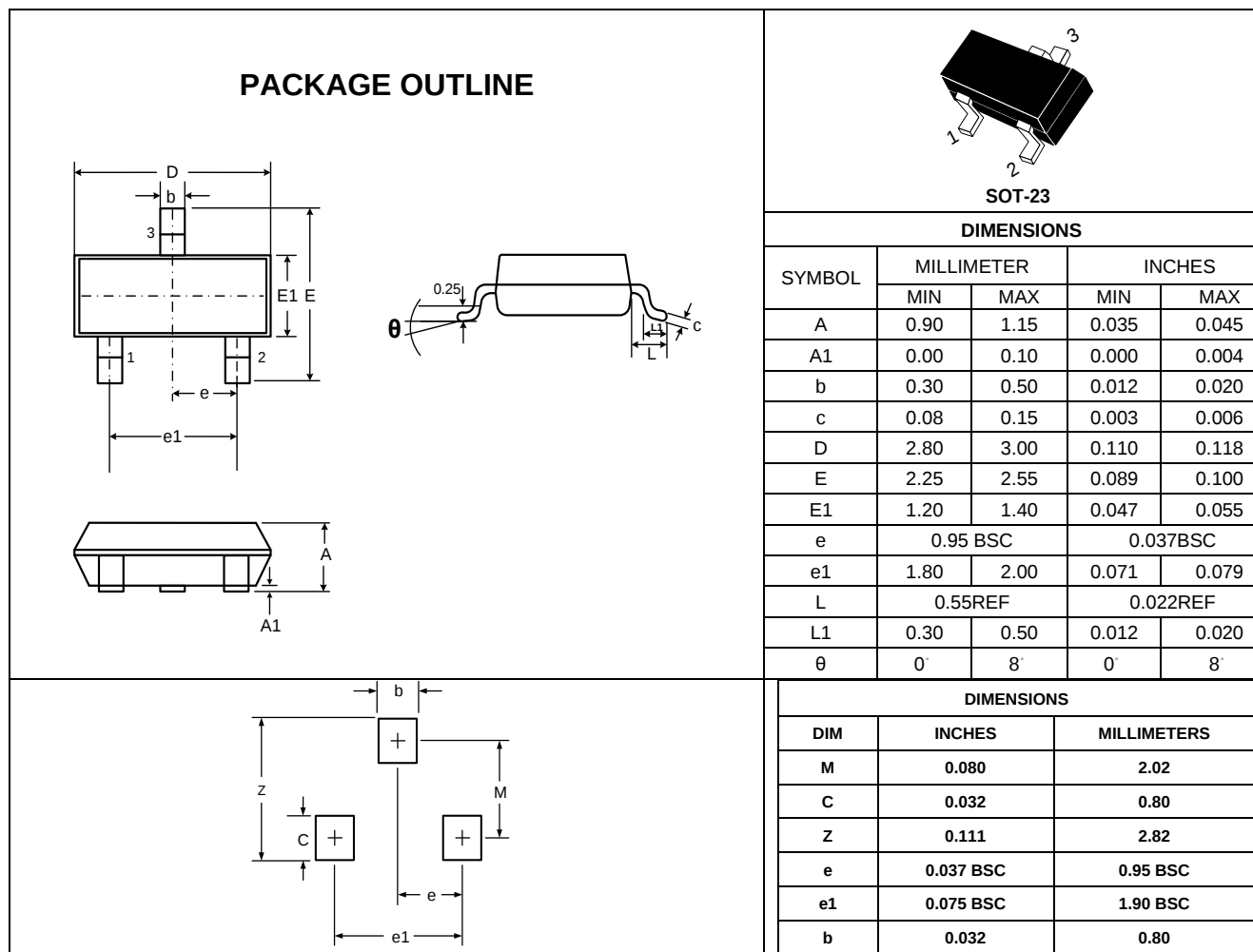
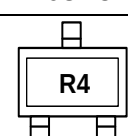


Figure 8. Gate Charge Characteristics

Outline Drawing – SOT-23



Marking Codes

Part Number	WM03N57M
Marking Code	

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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