

Description

This is 20V 0.75A N-channel mosfet in a SOT-523 plastic package.

Features

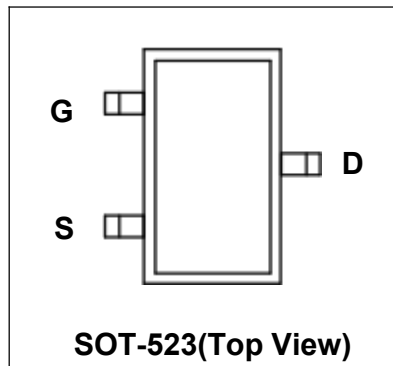
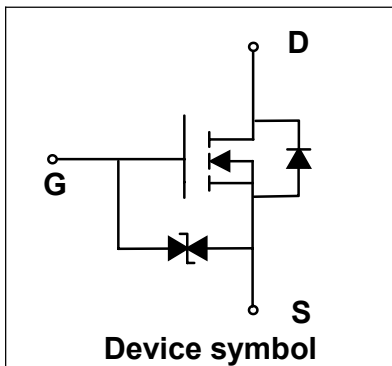
- $V_{DS} = 20V$, $I_D = 0.75A$
 $R_{DS(on)} < 0.38m\Omega$ @ $V_{GS} = 4.5V$
 $R_{DS(on)} < 0.45m\Omega$ @ $V_{GS} = 2.5V$
- Trench MOSFET Technology
- Low Threshold Voltage
- Pb Free Device
- ESD Protected

Mechanical Characteristics

- SOT-523 Package
- Marking : Making Code
- RoHS Compliant

V_{DSS}	$R_{DS(on)}$	I_D
20 V	0.38 Ω	0.75 A

Equivalent Circuit & Pinning



Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	0.75	A
Pulsed Drain Current ¹	I_{DM}	3	A
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Thermal Resistance from Junction to Ambient ²	R_{θJA}	625	°C/W

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} = 0V	-	-	1	μA
Gate-body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±10V	-	-	±20	μA
Gate threshold voltage ³	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.35	0.75	1.1	V
Drain-Source On-state Resistance ³	R _{DS(on)}	V _{GS} = 4.5V, I _D = 0.65A	-	0.19	0.38	Ω
		V _{GS} = 2.5V, I _D = 0.55A	-	0.26	0.45	
		V _{GS} = 1.8V, I _D = 0.45A	-	0.35	-	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 16V, f = 1MHz	-	54	-	pF
Output Capacitance	C _{oss}		-	10	-	
Reverse Transfer Capacitance	C _{rss}		-	7.5	-	
Switching Characteristics						
Turn-on Delay Time ⁴	t _{d(on)}	V _{DS} =10V,V _{GS} =4.5V, I _D =0.5A, R _{GEN} =10Ω	-	6.7	-	nS
Rise Time ⁴	t _r		-	4.8	-	
Turn-off Delay Time ⁴	t _{d(off)}		-	17.3	-	
Fall Time ⁴	t _f		-	7.4	-	
Source-Drain Diode Characteristics						
Body Diode Voltage	V _{SD}	I _S =0.15A, V _{GS} = 0V	-	-	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 board using 1 square inch pad size, 1oz single-side copper.
3. Pulse Test: Pulse width ≤ 300μs, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to product

Typical Characteristics

Figure 1. Output Characteristics

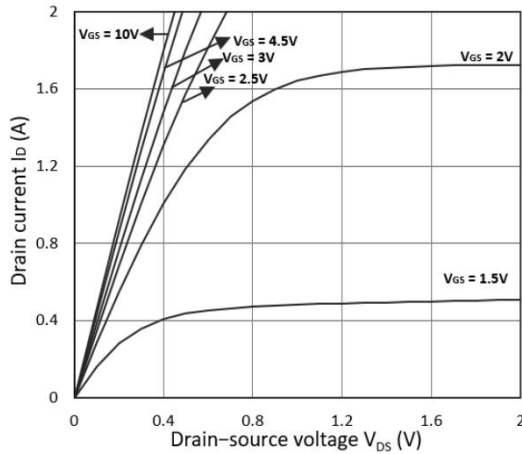


Figure 2. Transfer Characteristics

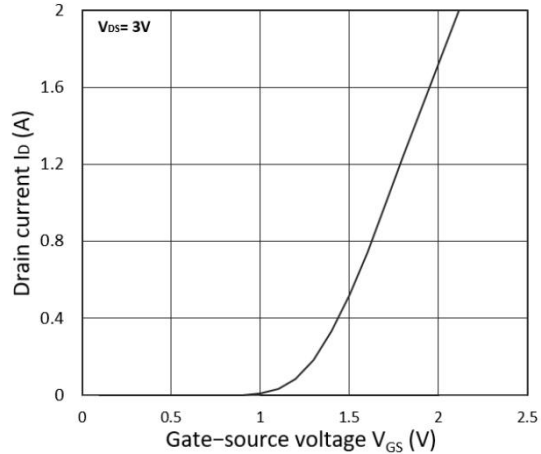


Figure 3. $R_{DS(ON)}$ vs. I_D

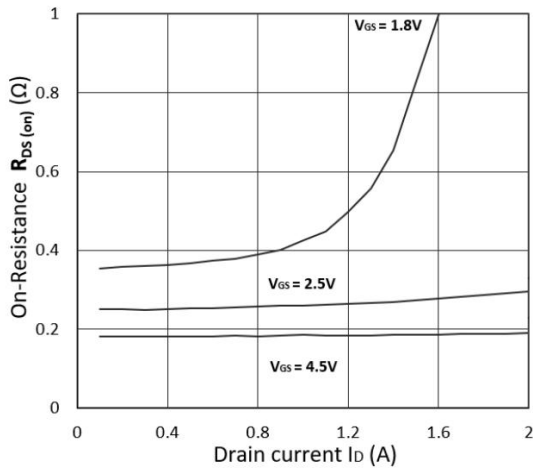


Figure 5. I_S vs. V_{SD}

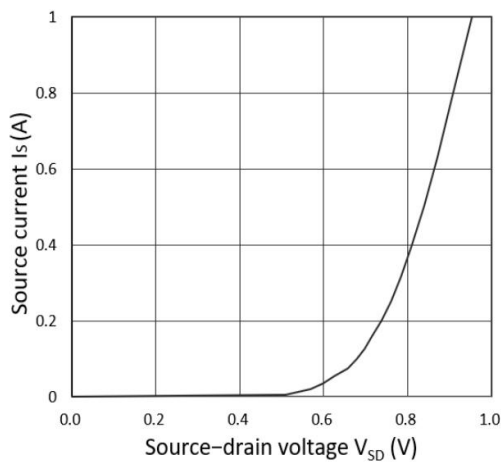


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

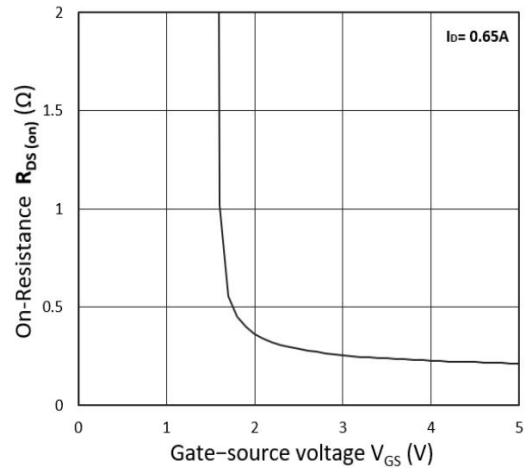
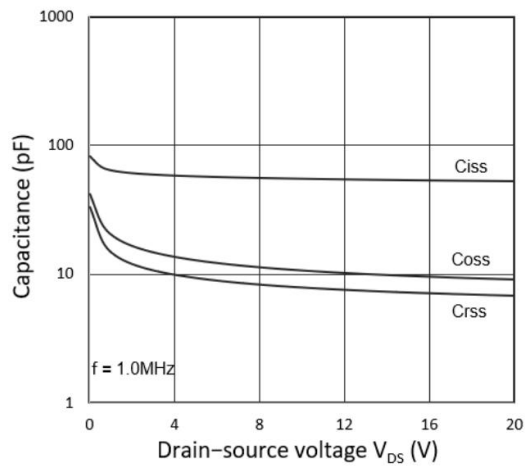
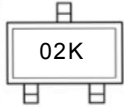


Figure 6. Capacitance Characteristics



Marking Codes

Part Number	CT02N008MG
Marking Code	

Package Information

Qty: 3k/Reel

Outline Drawing – SOT-523

PACKAGE OUTLINE

Top view of the SOT-523 package. Dimensions shown: D (total width), e1 (pitch between pins), b1 (pin width), and b2 (base width).

Side view of the SOT-523 package. Dimensions shown: A1 (lead height), A (lead length), c (lead thickness), and theta (lead angle).

Bottom view of the SOT-523 package. Dimension shown: e (distance between pins).

3D perspective view of the SOT-523 package. Pins are labeled 1, 2, and 3.

SOT-523

DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.7	0.9	0.028	0.035
A1	0	0.1	0	0.004
b1	0.15	0.25	0.006	0.01
b2	0.25	0.35	0.01	0.014
c	0.1	0.2	0.004	0.008
D	1.5	1.7	0.059	0.067
E	0.7	0.9	0.028	0.035
E1	1.45	1.75	0.057	0.069
e1	0.9	1.1	0.035	0.043
L	0.3	0.5	0.012	0.02
L1	0.26	0.46	0.01	0.018
θ	0	8°	0	8°

Top view of the package. Dimensions shown: X (pin width), Y (pin width), Z (pin height), G (pin spacing), P (pin pitch), and P1 (pin pitch).

DIMENSIONS

DIM	INCHES	MILLIMETERS
C	.055	1.40
P	.039	1.00
P1	.020	0.50
G	.024	0.60
X	.016	0.40
Y	.031	0.80
Z	.087	2.20

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.