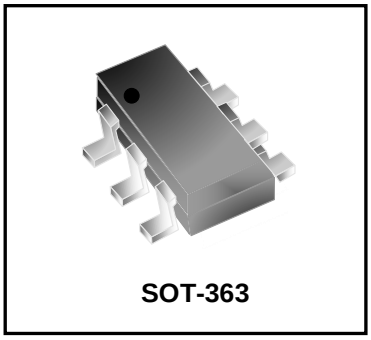
WM02DH08D

N+P Dual Channel Enhancement MOSFET

Features

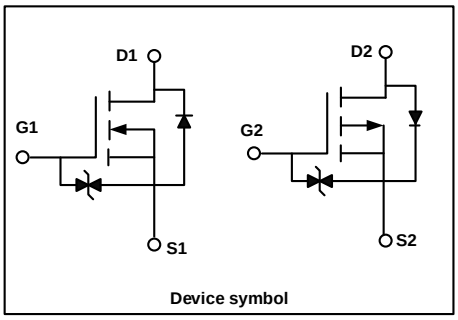


- Way-on Small Signal MOSFETs
- N - Channel:
  V_{DS}= 20V, I_D = 0.75A
  $R_{DS(on)}$ < 0.38Ω @ V_{GS} = 4.5V
  $R_{DS(on)}$ < 0.45Ω @ V_{GS} = 2.5V
- P - Channel:
  V_{DS}= -20V, I_D = -0.66A
  $R_{DS(on)}$ < 0.52Ω @ V_{GS} = -4.5V
  $R_{DS(on)}$ < 0.78Ω @ V_{GS} = -2.5 V
- Trench LV MOSFET Technology
- ESD Protected

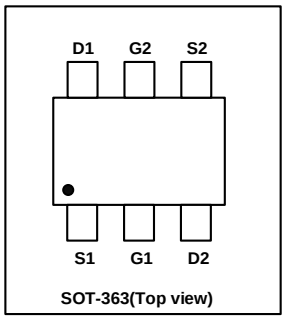
Mechanical Characteristics

- SOT-363 Package
- Marking : Making Code
- RoHS Compliant

Schematic & PIN Configuration



Device symbol



SOT-363(Top view)

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter		Symbol	Value		Unit
Drain-Source Voltage		V_{DS}	20	-20	V
Gate-Source Voltage		V_{GS}	±12	±12	V
Continuous Drain Current	T_A = 25°C	I_D	0.75	-0.66	A
Pulsed Drain Current[1]		I_{DM}	3	-2.64	A
Power Dissipation	T_A = 25°C	P_D	200		mW
Operating Junction and Storage Temperature Range		T_J ,T_{STG}	-55 to 150		°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JA}$	625	°C/W

Electrical Characteristics N-Channel (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, 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	-	-	±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	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	-	0.70	-	
Dynamic Characteristics[4]						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz	-	54	-	pF
Output Capacitance	C_{oss}		-	11	-	
Reverse Transfer Capacitance	C_{rss}		-	7	-	
Switching Characteristics[4]						
Total Gate Charge	Q_g	V_{GS} = 4.5V,V_{DS} = 10V, I_D = 0.65A	-	1	-	nC
Gate-Source Charge	Q_{gs}		-	0.23	-	
Gate-Drain Charge	Q_{gd}		-	0.25	-	
Turn-on Delay Time	$t_{d(on)}$	V_{GS} =4.5V, V_{DD} =10V, I_D =0.65A, R_G=3Ω	-	3.9	-	ns
Turn-on Rise Time	t_r		-	2.1	-	
Turn-off Delay Time	$t_{d(off)}$		-	17.3	-	
Turn- off Fall Time	t_f		-	7.4	-	
Source-Drain Diode Characteristics						
Body Diode Voltage[3]	V_{SD}	I_S=0.15A, V_{GS} = 0V	-	-	1.2	V
Continuous Source Current	I_S	-	-	-	0.75	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.

3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

4. This value is guaranteed by design hence it is not included in the production test.

Electrical Characteristics P-Channel (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-20	-	-	V
Gate-body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±10V	-	-	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V	-	-	-1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.3	-0.6	-1.1	V
Drain-Source On-state Resistance[3]	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -0.65A	-	0.45	0.52	Ω
		V_{GS} = -2.5V, I_D = -0.55A	-	0.65	0.78	
		V_{GS} = -1.8V, I_D = -0.45A	-	0.95	-	
Dynamic Characteristics[4]						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -10V, f = 1MHz	-	76	-	pF
Output Capacitance	C_{oss}		-	12	-	
Reverse Transfer Capacitance	C_{rss}		-	9	-	
Switching Characteristics[4]						
Total Gate Charge	Q_g	V_{GS} = -4.5V,V_{DS} = -10V, I_D = -0.66A,	-	2.2	-	nC
Gate-Source Charge	Q_{gs}		-	0.4	-	
Gate-Drain Charge	Q_{gd}		-	0.21	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = -4.5V,V_{DD} = -10V, R_G=3Ω, I_D = -0.66A,	-	7.5	-	ns
Turn-On Rise Time	t_r		-	4.9	-	
Turn-Off Delay Time	$t_{d(off)}$		-	29	-	
Turn- Off Fall Time	t_f		-	16.5	-	
Source-Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{DS}	I_S= -0.15A, V_{GS} = 0V	-	-	-1.2	V
Continuous Source Current	I_S	-	-	-	-0.66	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.

3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics:N-Channel

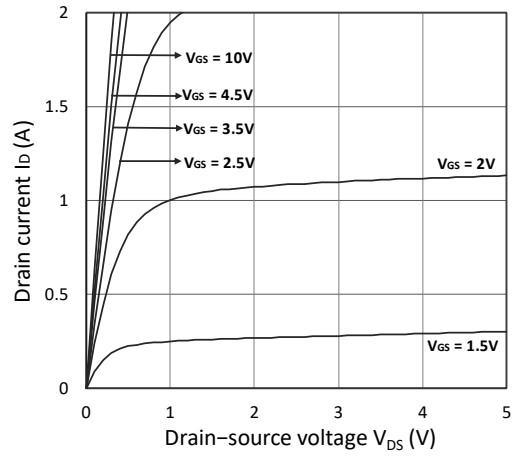


Figure 1. Output Characteristics

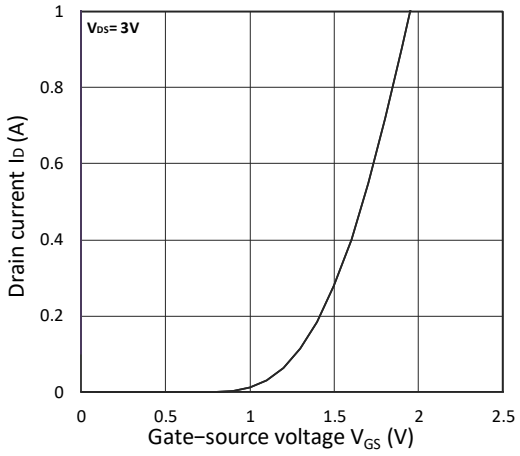


Figure 2. Transfer Characteristics

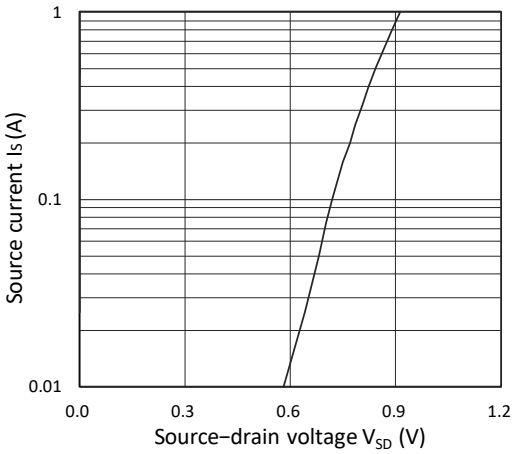


Figure 3. Forward Characteristics of Reverse

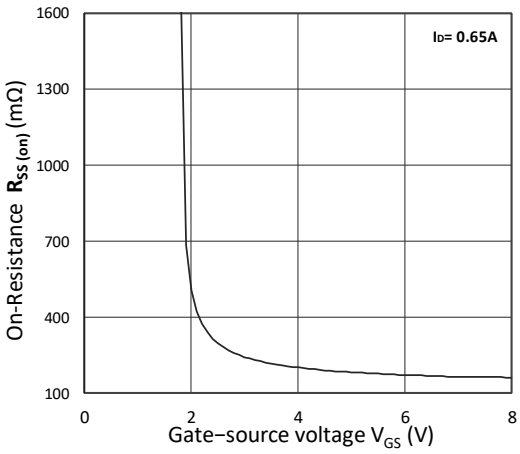


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

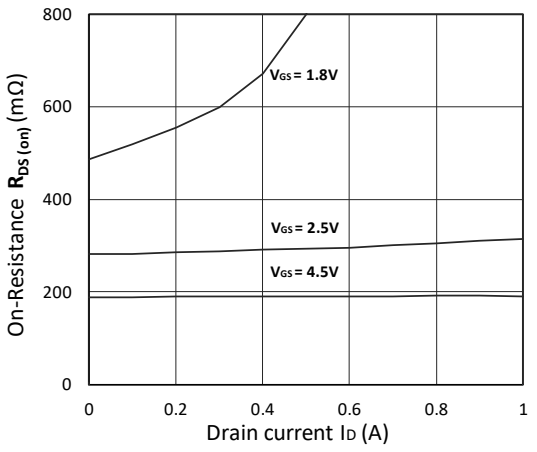


Figure 5. $R_{DS(ON)}$ vs. I_D

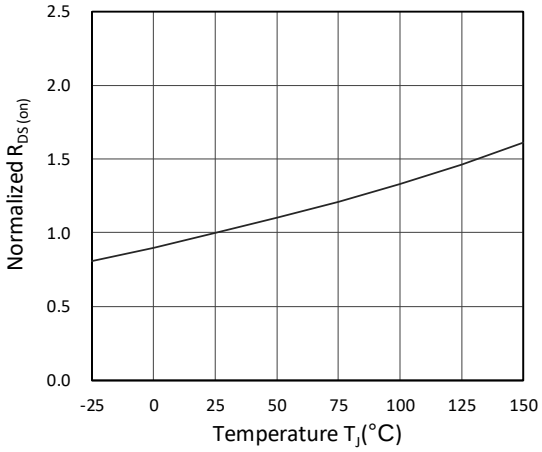


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

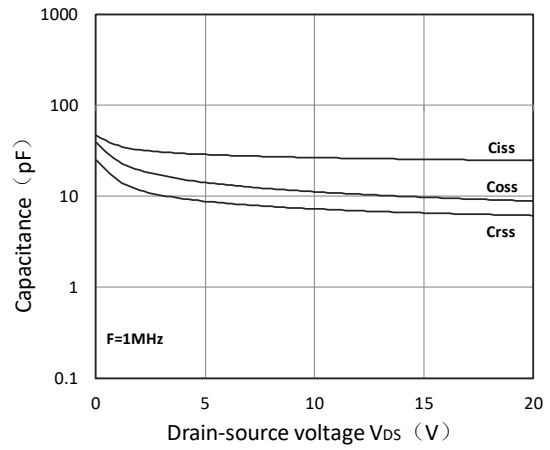


Figure 7. Capacitance Characteristics

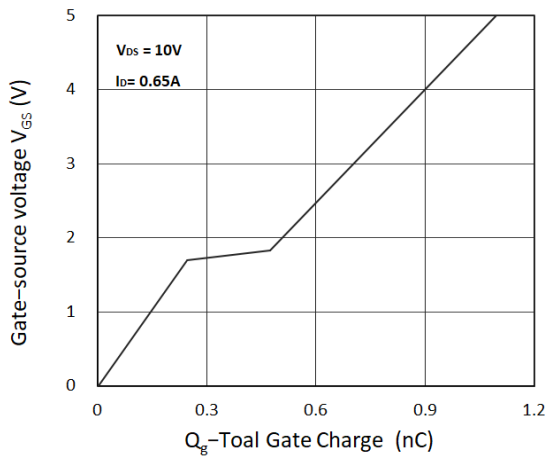


Figure 8. Gate Charge Characteristics

Typical Characteristics:P-Channel

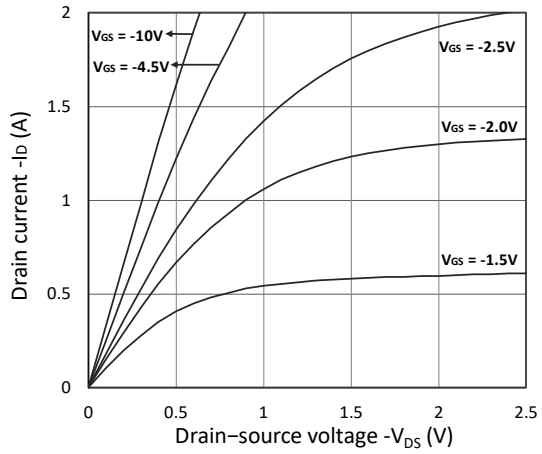


Figure 1. Output Characteristics

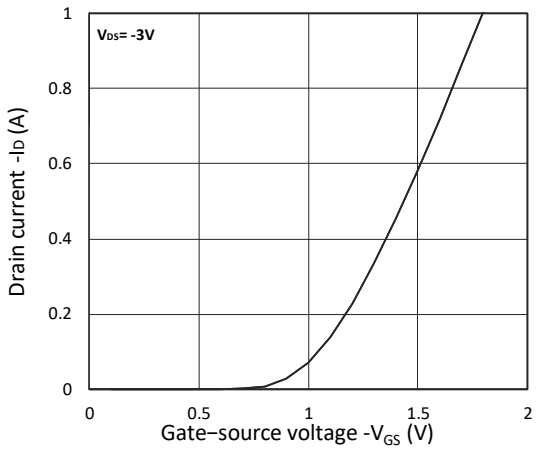


Figure 2. Transfer Characteristics

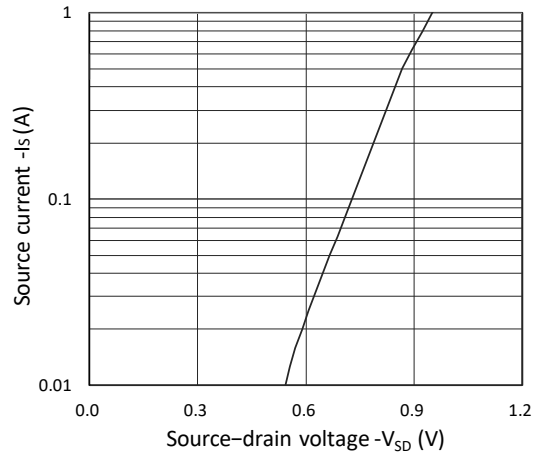


Figure 3. Forward Characteristics of Reverse

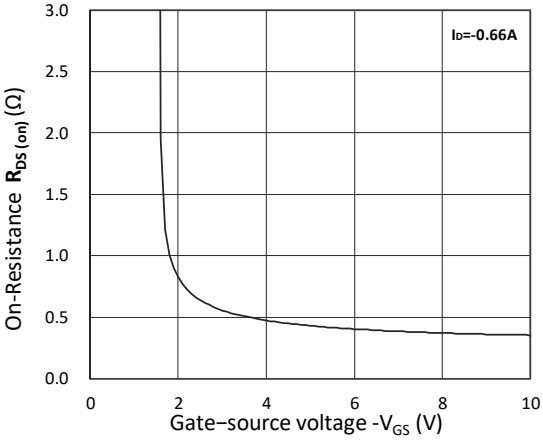


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

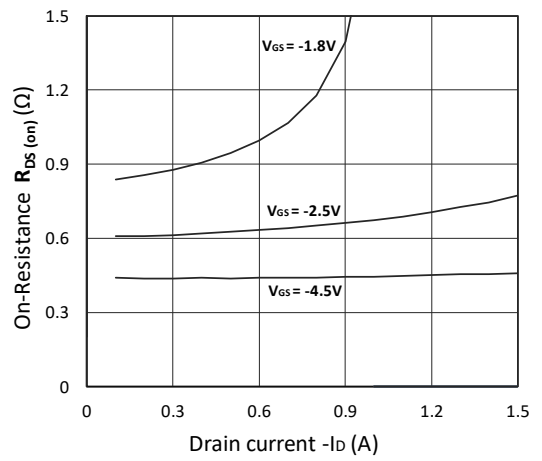


Figure 5. $R_{DS(ON)}$ vs. I_D

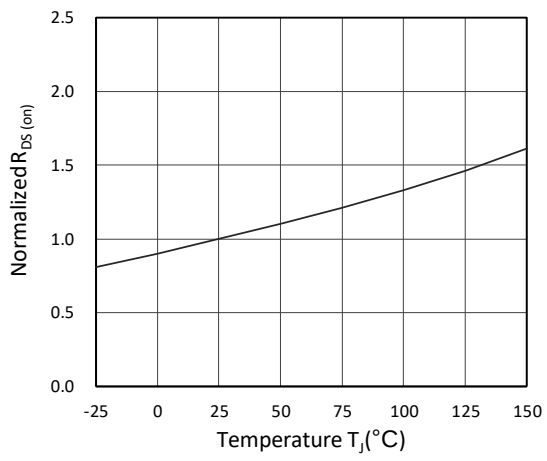


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

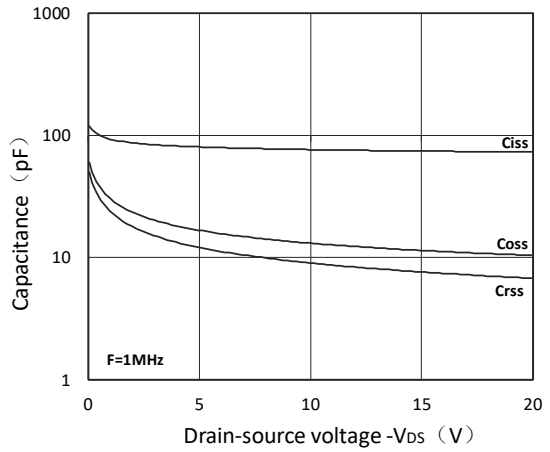


Figure 7. Capacitance Characteristics

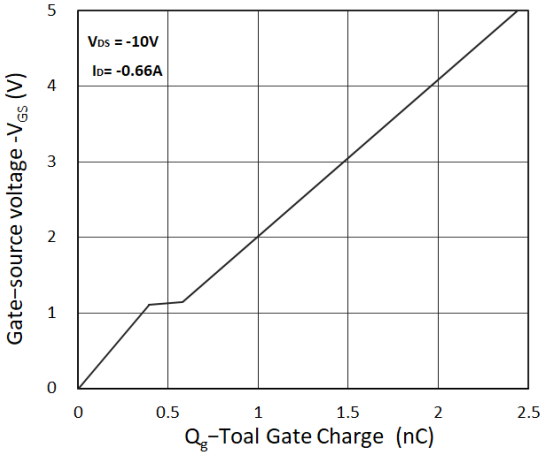
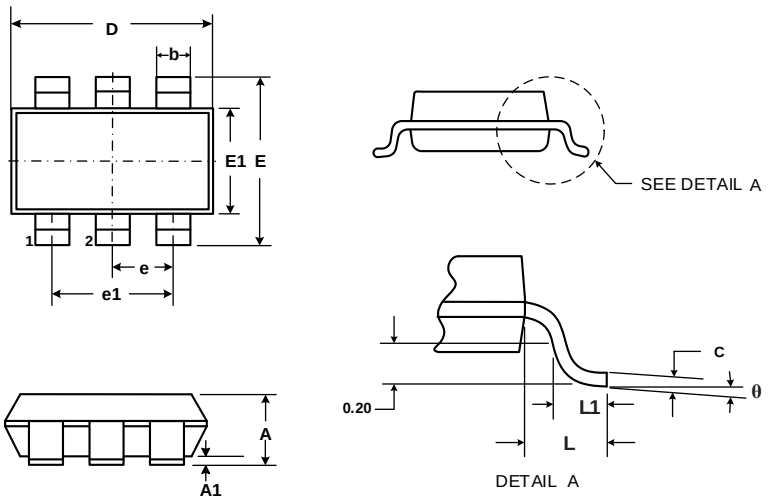
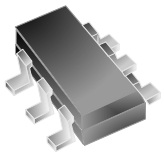


Figure 8. Gate Charge Characteristics

Outline Drawing – SOT-363

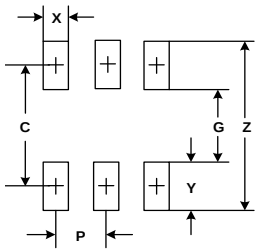
PACKAGE OUTLINE





SOT-363

DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.10	0.035	0.043
A1	0.00	0.10	0.000	0.004
b	0.15	0.35	0.006	0.014
c	0.10	0.15	0.004	0.006
D	2.00	2.20	0.079	0.087
E1	1.15	1.35	0.045	0.053
E	2.15	2.45	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.20	1.40	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.26	0.46	0.010	0.018
θ	0°	8°	0°	8°

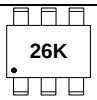


DIMENSIONS		
DIM	INCHES	MILLIMETERS
Z	0.110	2.79
G	0.043	1.09
C	0.076	1.94
P	0.026 TYP	0.65 TYP
X	0.016	0.40
Y	0.033	0.85

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.

Marking Codes

Part Number	WM02DH08D
Marking Code	

Package Information

Qty：3k/Reel

CONTACT INFORMATION

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