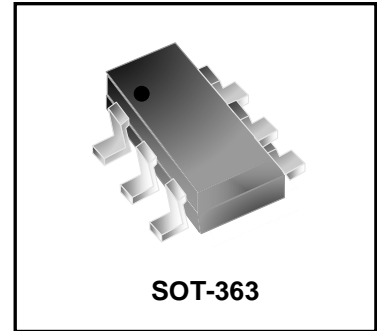


Features

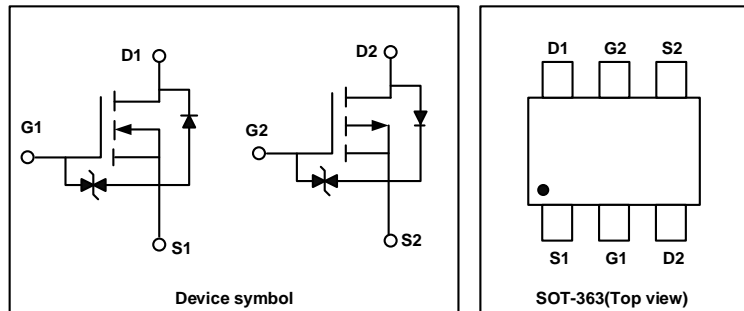
- Way-on Small Signal MOSFETs
- N - Channel:
 - $V_{DS} = 20V, I_D = 0.75A$
 - $R_{DS(on)} < 0.38\Omega @ V_{GS} = 4.5V$
 - $R_{DS(on)} < 0.45\Omega @ V_{GS} = 2.5V$
- P - Channel:
 - $V_{DS} = -20V, I_D = -0.66A$
 - $R_{DS(on)} < 0.52\Omega @ V_{GS} = -4.5V$
 - $R_{DS(on)} < 0.78\Omega @ V_{GS} = -2.5V$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



Mechanical Characteristics

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

Schematic & PIN Configuration



Absolute Maximum Ratings ($T_A=25^\circ C$ 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	I_D	0.75	-0.66	A
Pulsed Drain Current ¹	I_{DM}	3	-2.64	A
Power Dissipation	P_D	200		mW
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	$R_{\theta JA}$	625	$^\circ C/W$

Electrical Characteristics N-Channel ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	μA
Gate-body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$	-	-	± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	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 Characteristics⁴						
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 Characteristics⁴						
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	$t_{d(on)}$	$V_{GS} = 4.5V, V_{DD} = 10V,$ $I_D = 0.65A, R_G = 3\Omega$	-	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 $T_{J(MAX)}=150^{\circ}\text{C}$.
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 $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. This value is guaranteed by design hence it is not included in the production test.

Electrical Characteristics P-Channel ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20	-	-	V
Gate-body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$	-	-	± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-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 Characteristics⁴						
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 Characteristics⁴						
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	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DD} = -10V,$ $R_G = 3\Omega, I_D = -0.66A,$	-	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 $T_{J(MAX)}=150^\circ\text{C}$.
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:N-Channel

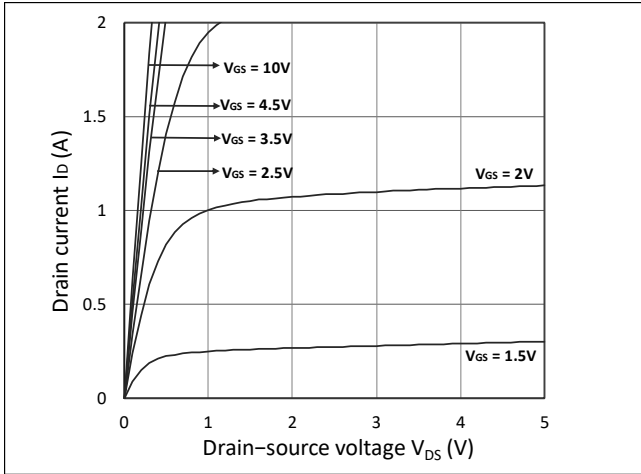


Figure 1. Output Characteristics

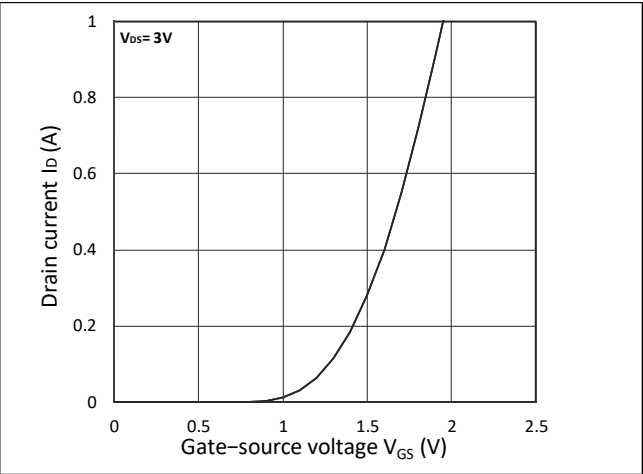


Figure 2. Transfer Characteristics

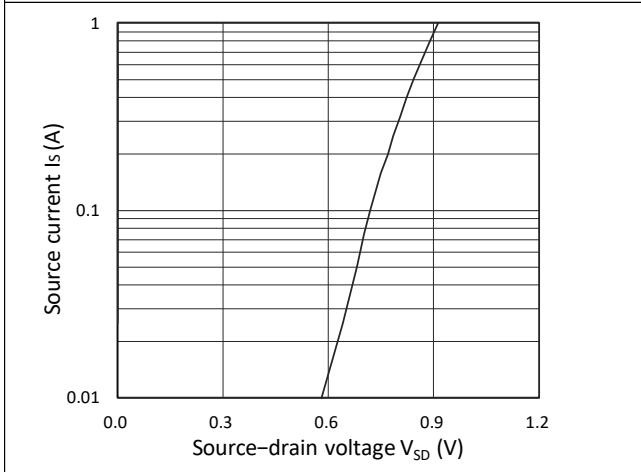


Figure 3. Forward Characteristics of Reverse

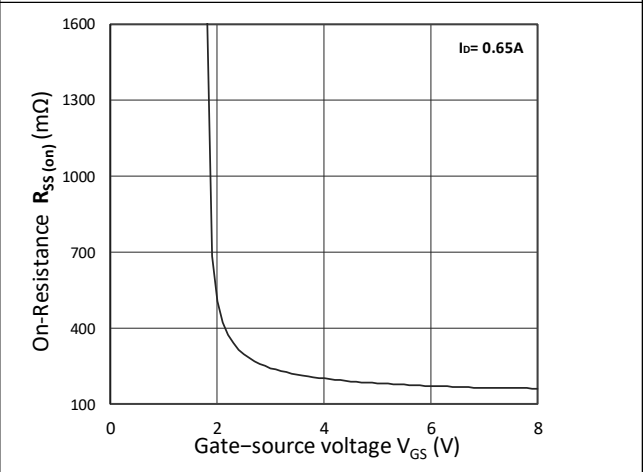


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

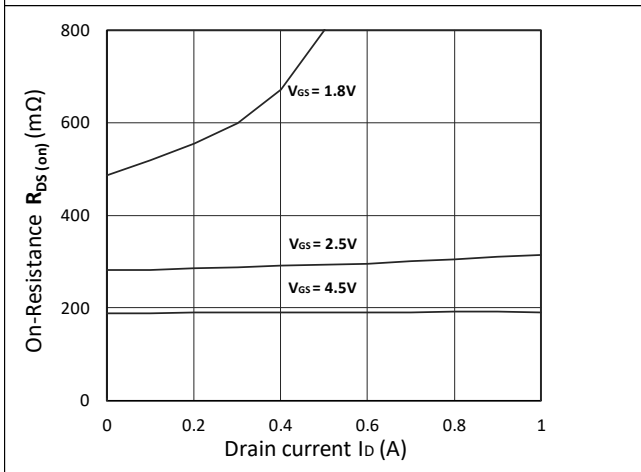


Figure 5. $R_{DS(ON)}$ vs. I_D

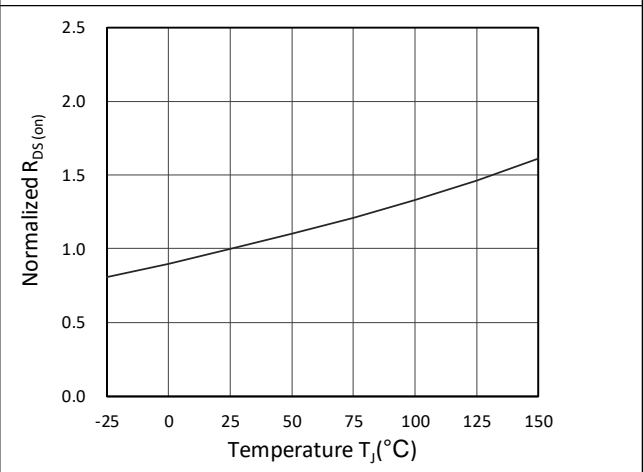
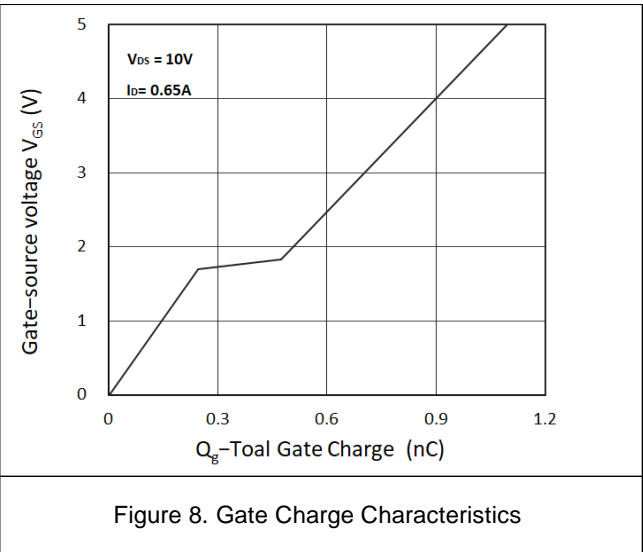
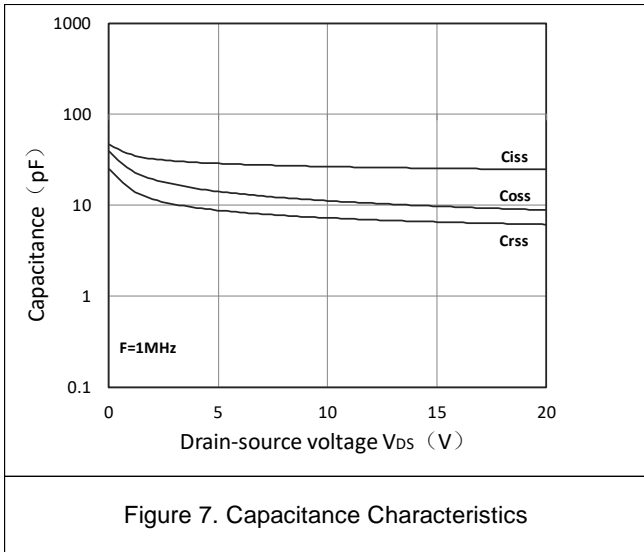


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature



Typical Characteristics:P-Channel

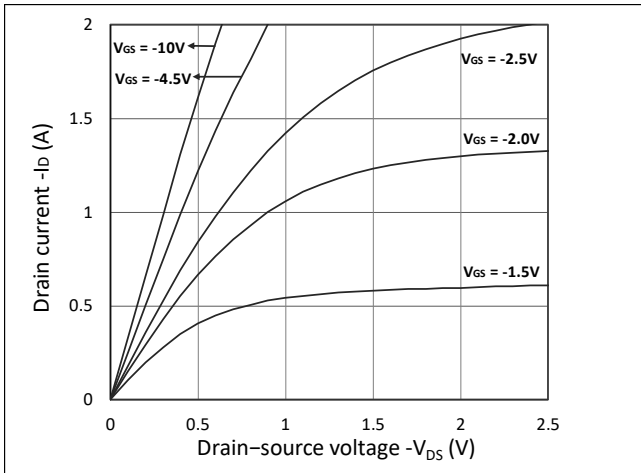


Figure 1. Output Characteristics

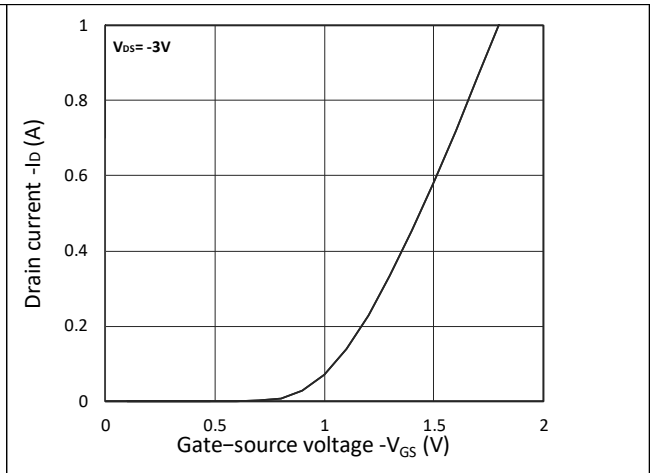


Figure 2. Transfer Characteristics

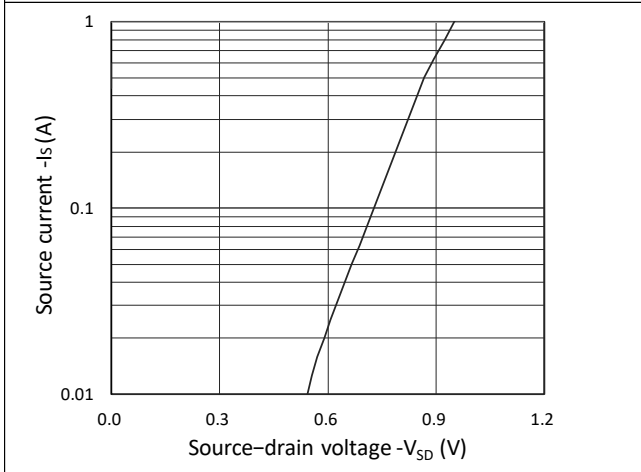


Figure 3. Forward Characteristics of Reverse

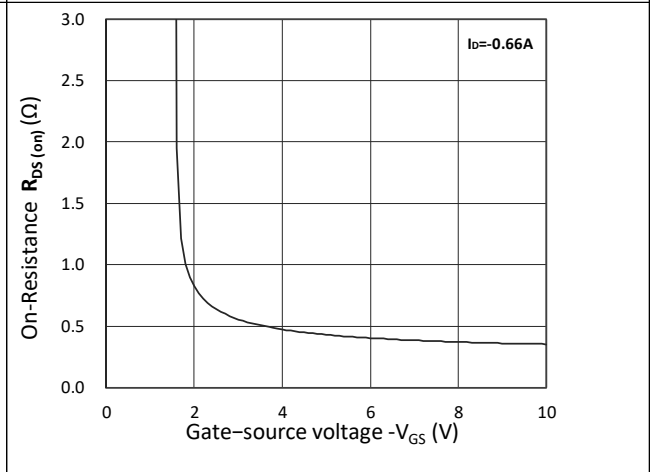


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

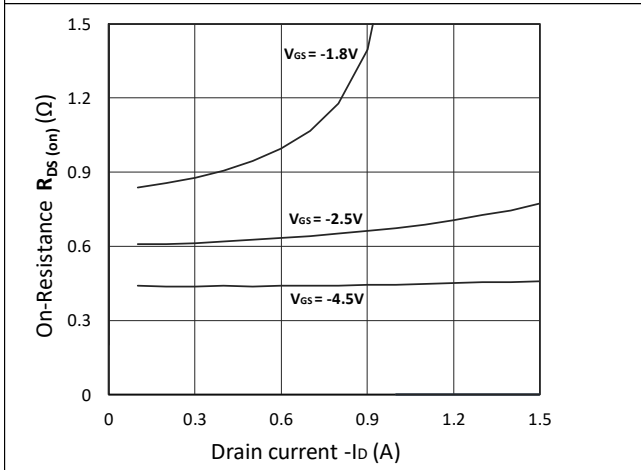


Figure 5. $R_{DS(ON)}$ vs. I_D

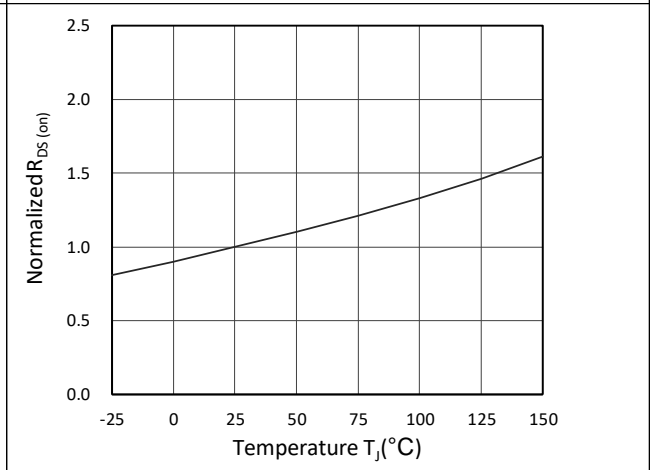
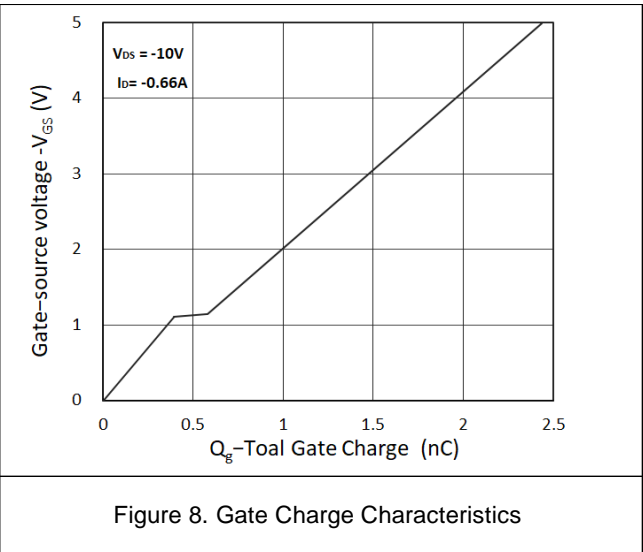
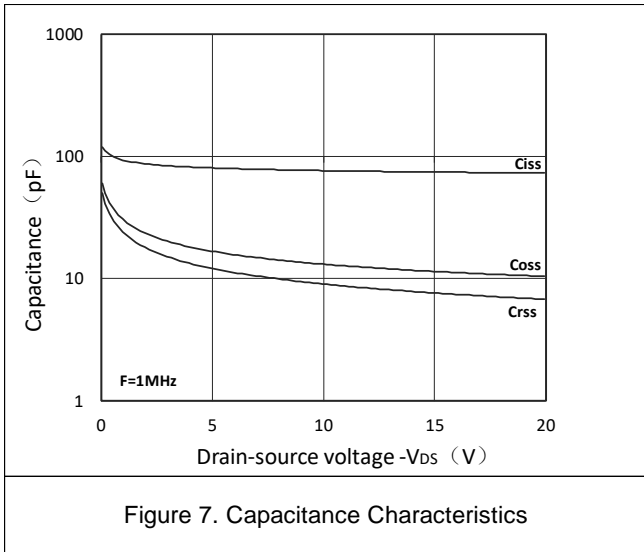
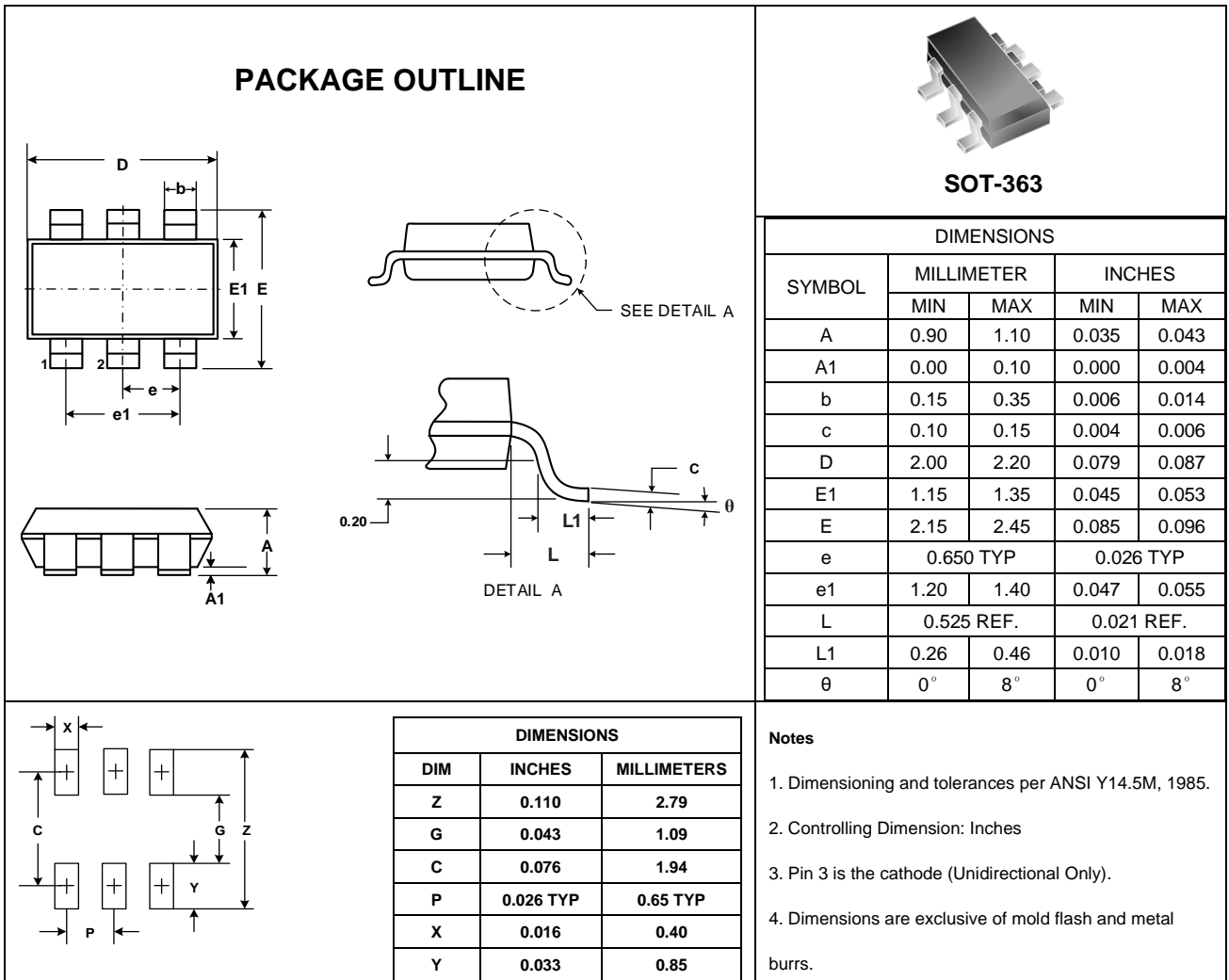


Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature



Outline Drawing – SOT-363



Marking Codes

Part Number	WM02DH08D
Marking Code	

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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