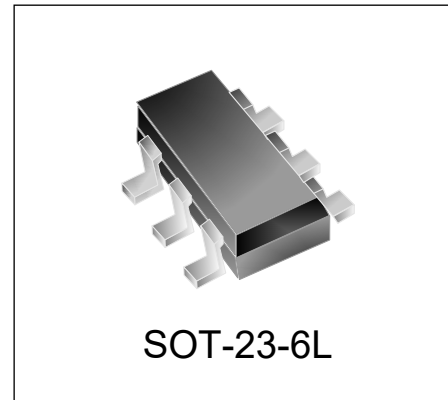


### Features

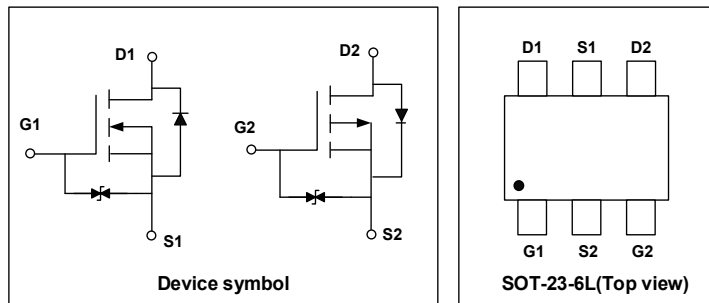
- Way-on Small Signal MOSFETs
- N-Channel:  
 $V_{DS} = 20V$ ,  $I_D = 1.4A$   
 $R_{DS(on)} < 0.32\Omega @ V_{GS} = 4.5V$   
 $R_{DS(on)} < 0.45\Omega @ V_{GS} = 2.5V$
- P-Channel:  
 $V_{DS} = -20V$ ,  $I_D = -1.1A$   
 $R_{DS(on)} < 0.52\Omega @ V_{GS} = -4.5V$   
 $R_{DS(on)} < 0.78\Omega @ V_{GS} = -2.5V$
- Trench LV MOSFET Technology
- ESD Protected



### Mechanical Characteristics

- SOT-23-6L 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		$V_{GS}$	$\pm 10$	$\pm 10$	
Continuous Drain Current	$T_A=25^\circ C$	$I_D$	1.4	-1.1	A
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	5.6	-3.3	A
Power Dissipation	$T_A=25^\circ C$	$P_D$	1.1		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 <sup>2</sup>	$R_{\theta JA}$	115	$^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Gate-body Leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 10V$	-	-	$\pm 20$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.35	0.7	1.1	V
Static Drain-Source On-Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.65A$	-	0.19	0.32	$\Omega$
		$V_{GS} = 2.5V, I_D = 0.55A$	-	0.26	0.45	
		$V_{GS} = 1.8V, I_D = 0.45A$	-	0.45	-	
<b>Dynamic characteristics<sup>4</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1MHz$	-	54	-	pF
Output Capacitance	$C_{oss}$		-	12	-	
Reverse Transfer Capacitance	$C_{rss}$		-	9	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total Gate Charge	$Q_g$	$V_{GS} = 4.5V, V_{DD} = 10V,$ $I_D = 0.65A$	-	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
Rise Time	$t_r$		-	2.1	-	
Turn-off Delay Time	$t_{d(off)}$		-	17.3	-	
Fall Time	$t_f$		-	7.4	-	
<b>Drain-Source Body Diode Characteristics</b>						
Body Diode Voltage <sup>3</sup>	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$	-	-	1.2	V
Continuous Source Current	$I_S$	-	-	-	1.4	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 inch<sup>2</sup> 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 Conditions	Min.	Typ.	Max.	Unit
<b>Static characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20	-	-	V
Gate-body Leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 10V$	-	-	$\pm 20$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.3	-	-1.1	V
Static Drain-Source On-Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -0.65A$	-	0.45	0.52	$\Omega$
		$V_{GS} = -2.5V, I_D = -0.6A$	-	0.65	0.78	
		$V_{GS} = -1.8V, I_D = -0.5A$	-	0.95	-	
<b>Dynamic characteristics<sup>4</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -10, V_{GS} = 0V,$ $f = 1MHz$	-	76	-	pF
Output Capacitance	$C_{oss}$		-	12	-	
Reverse Transfer Capacitance	$C_{rss}$		-	10	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total Gate Charge	$Q_g$	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -0.65A$	-	1.01	-	nC
Gate-Source Charge	$Q_{gs}$		-	0.12	-	
Gate-Drain Charge	$Q_{gd}$		-	0.21	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DD} = -10V,$ $I_D = -0.65A, R_G = 3\Omega$	-	9	-	ns
Rise Time	$t_r$		-	5.7	-	
Turn-Off Delay Time	$t_{d(off)}$		-	32.6	-	
Fall Time	$t_f$		-	20.3	-	
<b>Drain-Source Body Diode Characteristics</b>						
Body Diode Voltage <sup>3</sup>	$V_{SD}$	$I_S = -0.8A, V_{GS} = 0V$	-	-	-1.2	V
Continuous Source Current	$I_S$	-	-	-	-1.1	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 inch<sup>2</sup> 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

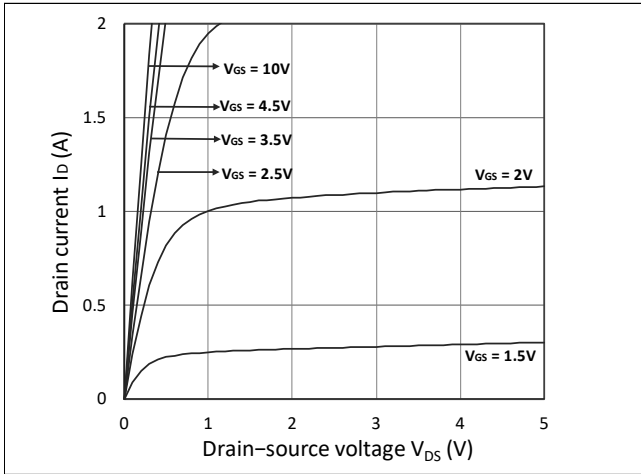


Figure 1. Output Characteristics

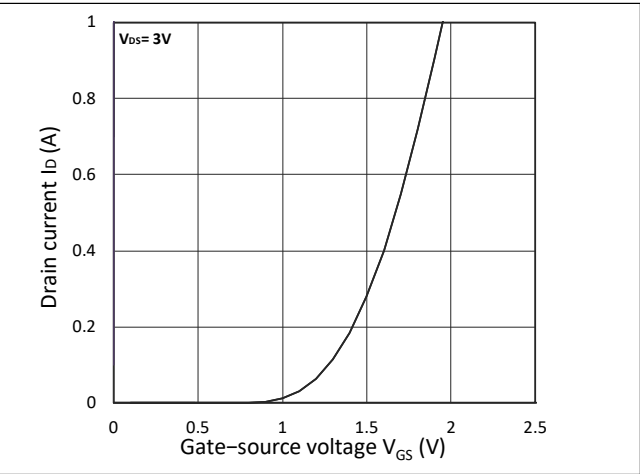


Figure 2. Transfer Characteristics

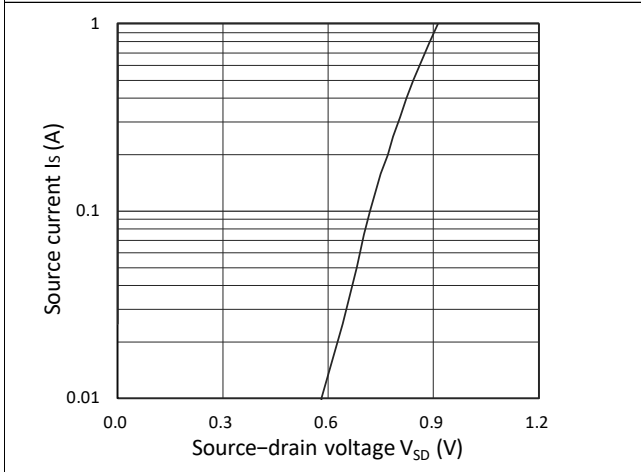


Figure 3. Forward Characteristics of Reverse

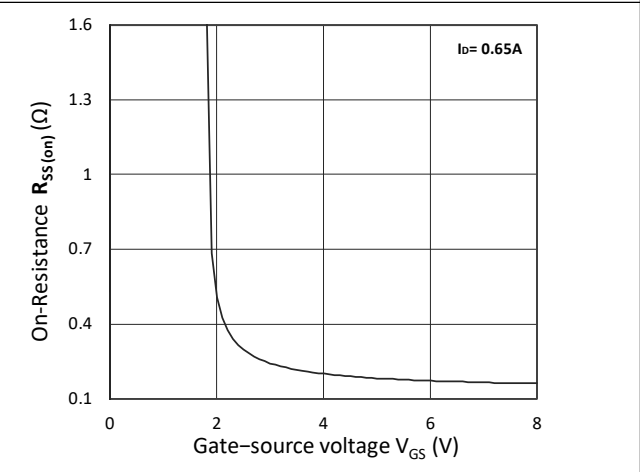


Figure 4.  $R_{DS(on)}$  vs.  $V_{GS}$

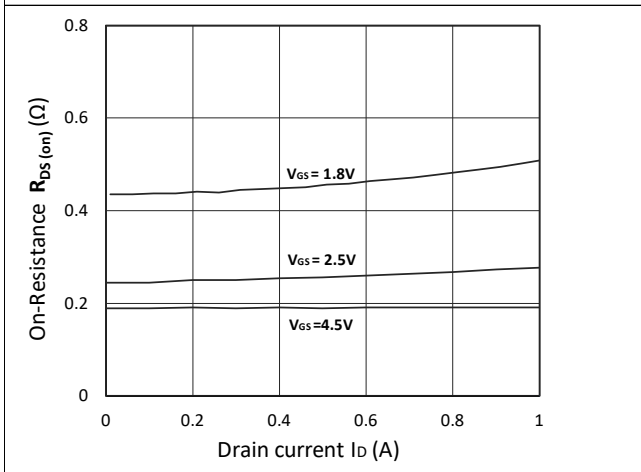


Figure 5.  $R_{DS(on)}$  vs.  $I_D$

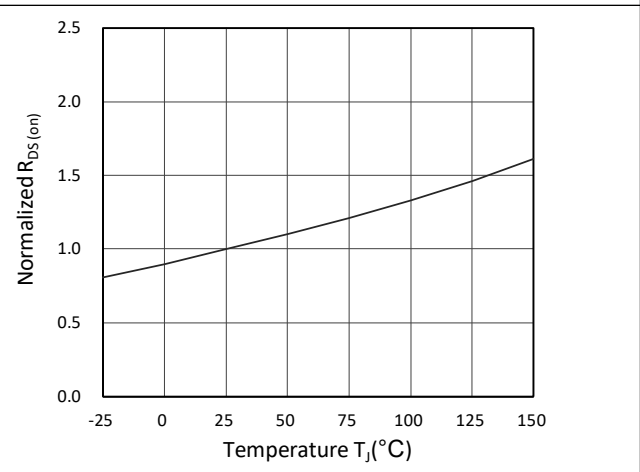
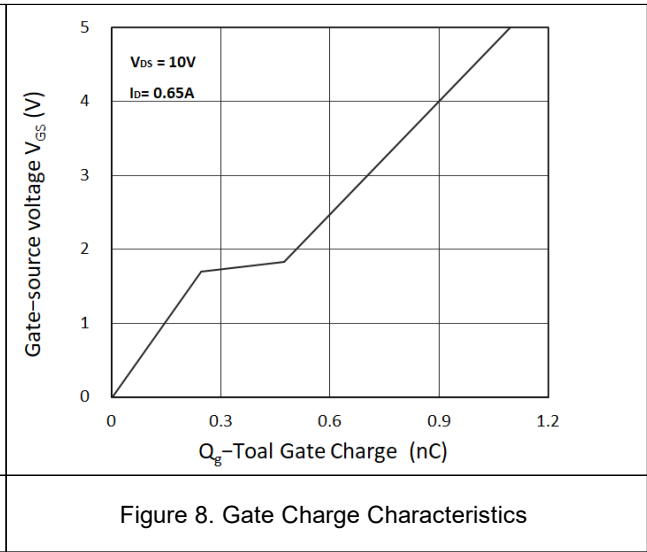
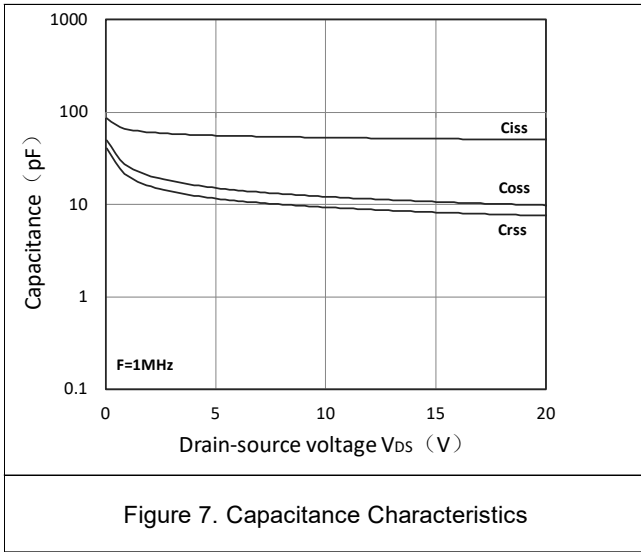


Figure 6. Normalized  $R_{DS(on)}$  vs. Temperature



Typical Characteristics:P-Channel

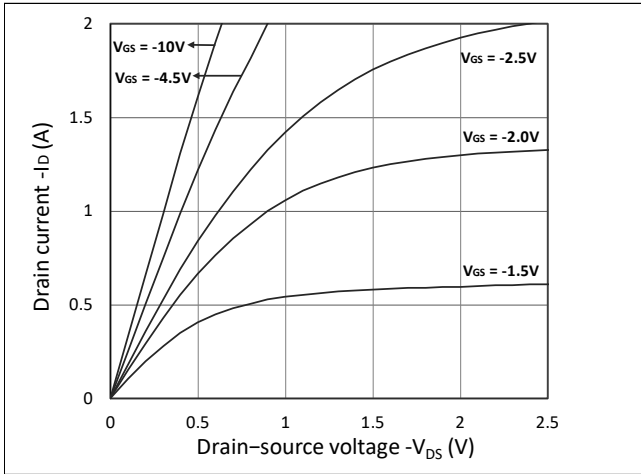


Figure 1. Output Characteristics

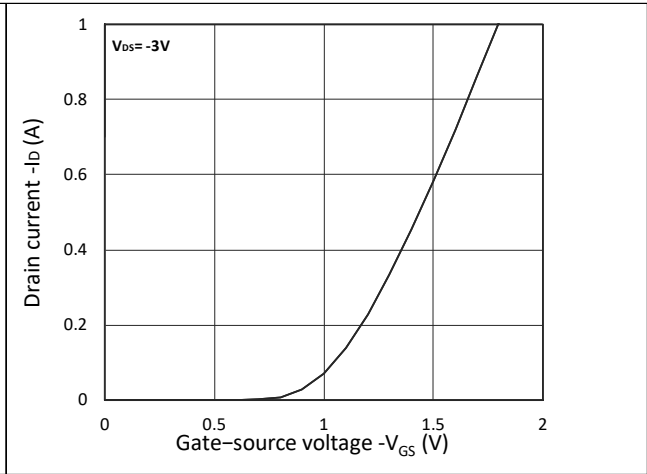


Figure 2. Transfer Characteristics

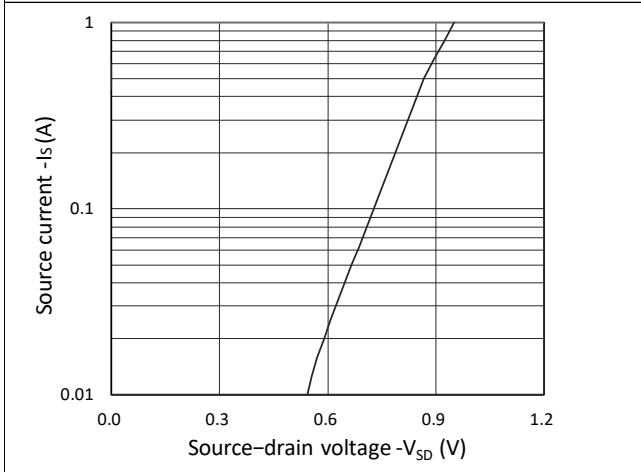


Figure 3. Forward Characteristics of Reverse

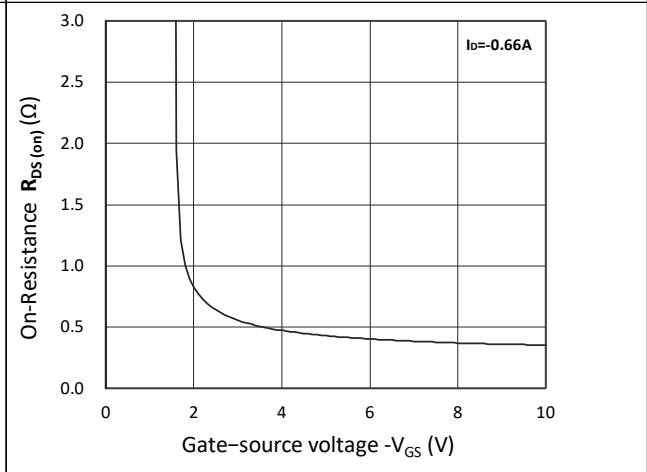


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

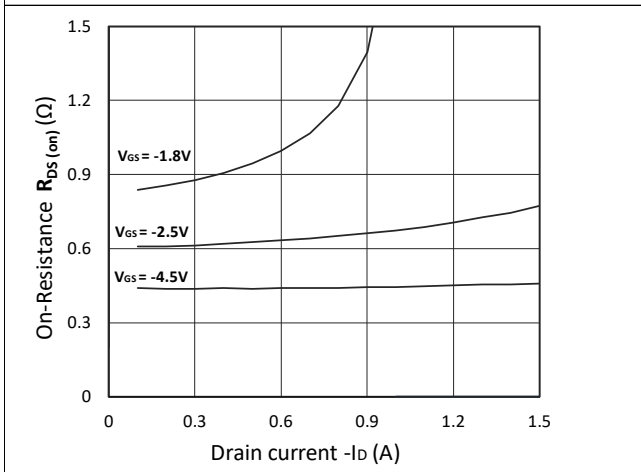


Figure 5.  $R_{DS(ON)}$  vs.  $I_D$

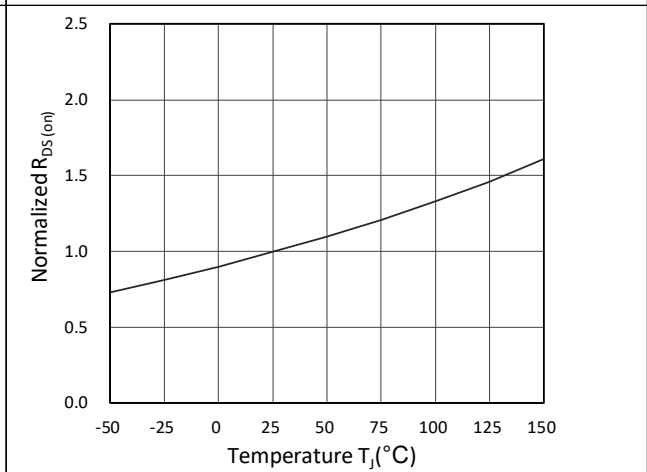


Figure 6. Normalized  $R_{DS(ON)}$  vs. Temperature

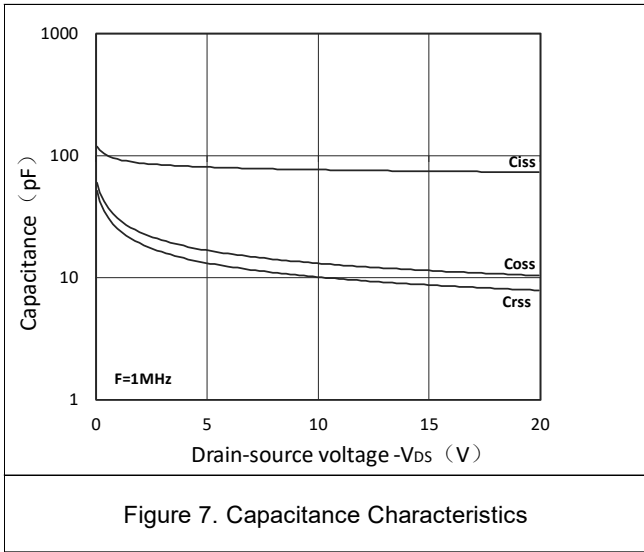


Figure 7. Capacitance Characteristics

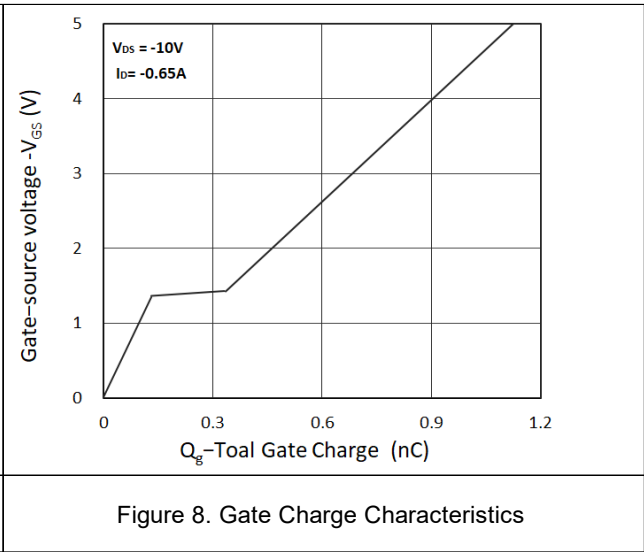


Figure 8. Gate Charge Characteristics

### Outline Drawing – SOT-23-6L

#### PACKAGE OUTLINE

SIDE VIEW SEE DETAIL A

DETAIL A

SOT-23-6L

#### DIMENSIONS

SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.25	0.035	0.049
A1	0.00	0.15	0.000	0.006
b	0.25	0.55	0.010	0.022
c	0.08	0.22	0.003	0.009
D	2.80	3.10	0.110	0.122
E1	1.50	1.75	0.060	0.069
E	2.60	3.00	0.102	0.118
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
L1	0.55	0.75	0.022	0.030
θ1	0°	8°	0°	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	0.098	2.50
G	0.055	1.40
P	0.037	0.95
X	0.024	0.60
Y	0.043	1.10
Z	0.141	3.60

**Notes:**

Controlling Dimension: Millimeter.

### Marking Codes

Part Number	WM02DH08M3
Marking Code	

### Package Information

Qty: 3k/Reel

### CONTACT INFORMATION

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WAYON website: <http://www.way-on.com>

For additional information, please contact your local Sales Representative.

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*Specifications are subject to change without notice.  
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.  
Users should verify actual device performance in their specific applications.*