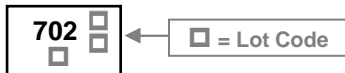


RoHS Compliant Product  
A Suffix of "-C" specifies halogen & lead-free

## FEATURES

- Dual N-Ch MOSFET in a SOT-363 Plastic Package
- Sensitive Gate Trigger Current
- Low Holding Current

## MARKING



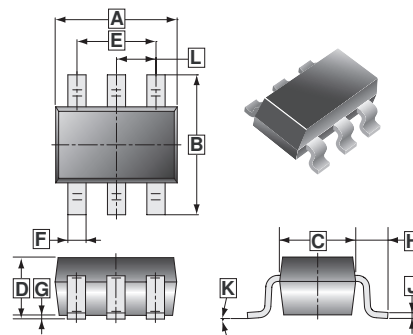
## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-363	3K	7 inch

## ORDER INFORMATION

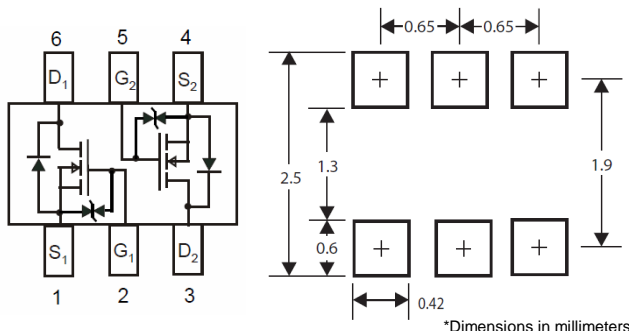
Part Number	Type
S2N7002RDW-C	Lead (Pb)-free and Halogen-free

## SOT-363



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.10	REF.
B	1.80	2.45	H	0.525	REF.
C	1.15	1.35	J	0.05	0.25
D	0.70	1.10	K	8°	
E	1.30 REF.		L	0.65 TYP.	
F	0.10	0.35			

## Mounting Pad Layout



## MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current @ $V_{GS}=10\text{V}$	$I_D$	320	mA
Pulsed Drain Current	$I_{DM}$	1.5	A
Total Power Dissipation	$P_D$	350	mW
Storage Temperature Range	$T_{STG}$	-55~150	$^\circ\text{C}$
Thermal Data			
Thermal Resistance from Junction-Ambient <sup>1</sup>	Steady State	$R_{\theta JA}$	417
	$t \leq 5\text{sec}$		300
			$^\circ\text{C/W}$

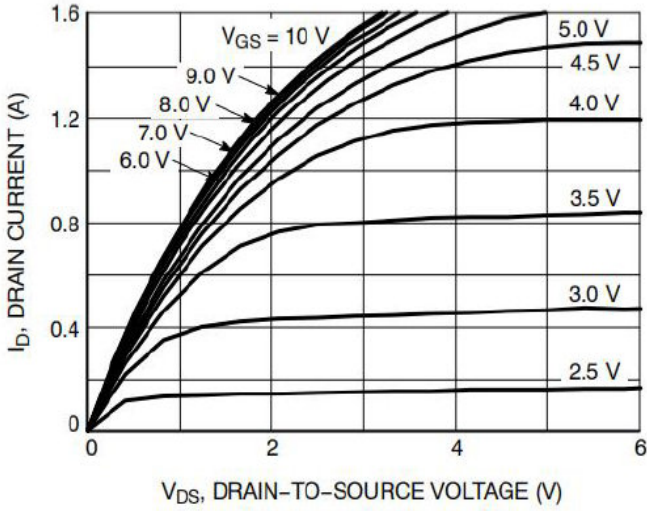
**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$BV_{DSS}$	60	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Forward Transconductance	$g_{fs}$	80	-	-	mS	$V_{DS}=10\text{V}, I_D=0.2\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=60\text{V}, V_{GS}=0$
Gate-Source Leakage	$I_{GSS}$	-	-	$\pm 10$	$\mu\text{A}$	$V_{DS}=0, V_{GS}=\pm 20\text{V}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	2.3	$\Omega$	$V_{GS}=10\text{V}, I_D=0.5\text{A}$
		-	1.7	2.7		$V_{GS}=5\text{V}, I_D=0.05\text{A}$
Total Gate Charge	$Q_g$	-	0.7	-	nC	$V_{GS}=4.5\text{V}$ $V_{DS}=10\text{V}$ $I_D=200\text{mA}$
Threshold Gate Charge	$Q_{g(th)}$	-	0.1	-		
Gate-Source Charge	$Q_{gs}$	-	0.3	-		
Gate-Drain Charge	$Q_{gd}$	-	0.1	-		
Turn-On Delay Time	$T_{d(on)}$	-	12.2	-	nS	$I_D=500\text{mA}$ $V_{DD}=25\text{V}$ $V_{GS}=10\text{V}$ $R_G=25\Omega$
Rise Time	$T_r$	-	9	-		
Turn-Off Delay Time	$T_{d(off)}$	-	55.8	-		
Fall Time	$T_f$	-	29	-		
Input Capacitance	$C_{iss}$	-	25	-	pF	$V_{DS}=20\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	11	-		
Reverse Transfer Capacitance	$C_{rss}$	-	2.5	-		
<b>Source-Drain Diode</b>						
Forward on Voltage	$V_{SD}$	-	-	1.5	V	$V_{GS}=0, I_S=250\text{mA}$

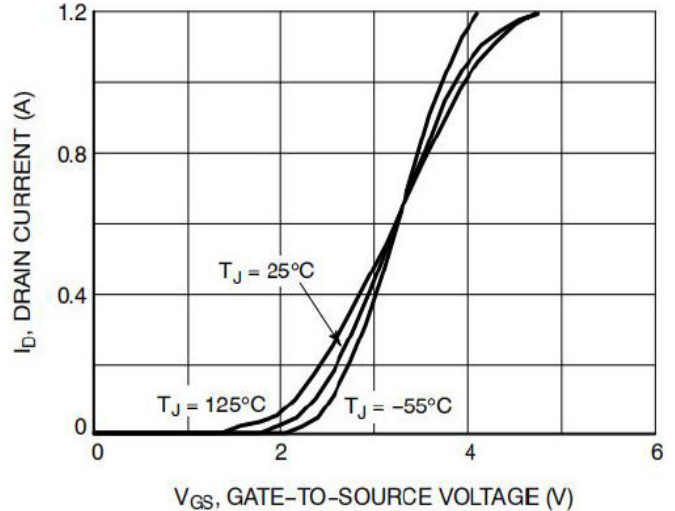
Note:

1. Surface mounted on FR-4 board using 1 sq in pad size with 1oz Cu.

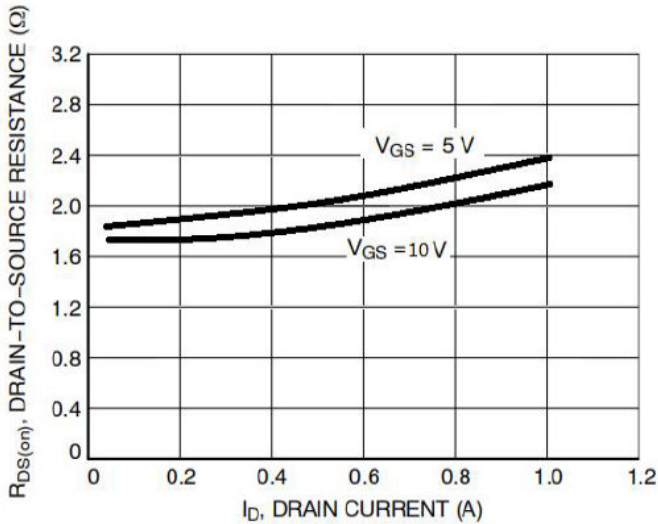
**CHARACTERISTIC CURVES**



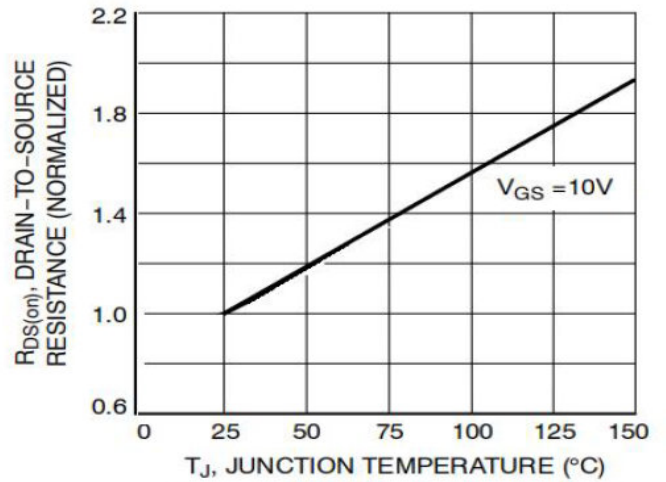
**Figure 1. On-Region Characteristics**



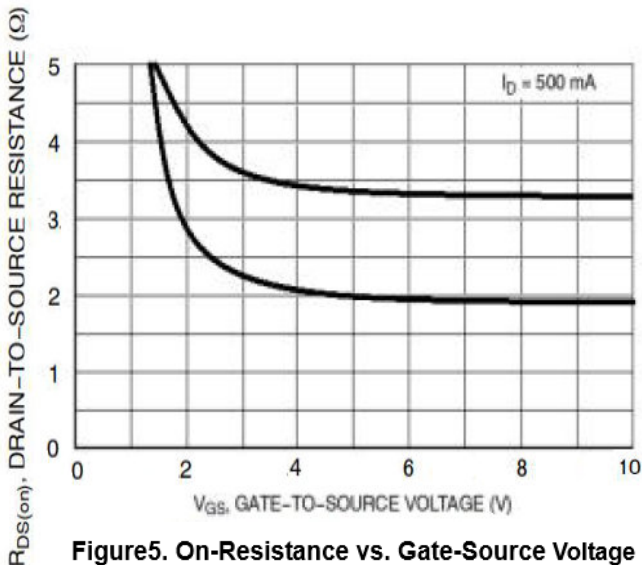
**Figure 2. Transfer Characteristics**



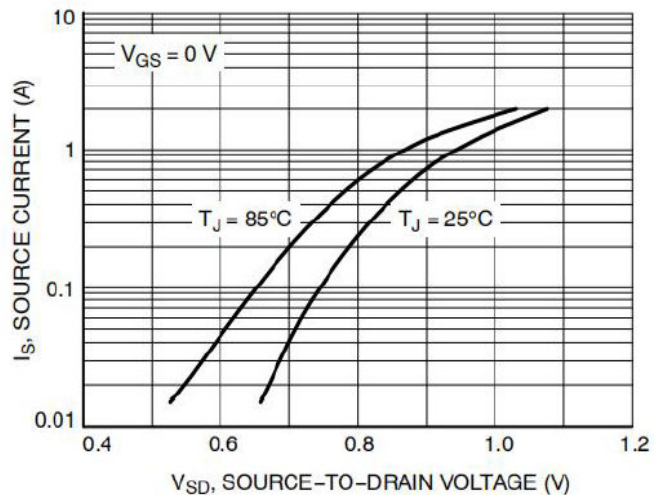
**Figure 3. On-Resistance vs. Drain Current and Temperature**



**Figure 4 On-Resistance Variation with Temperature**

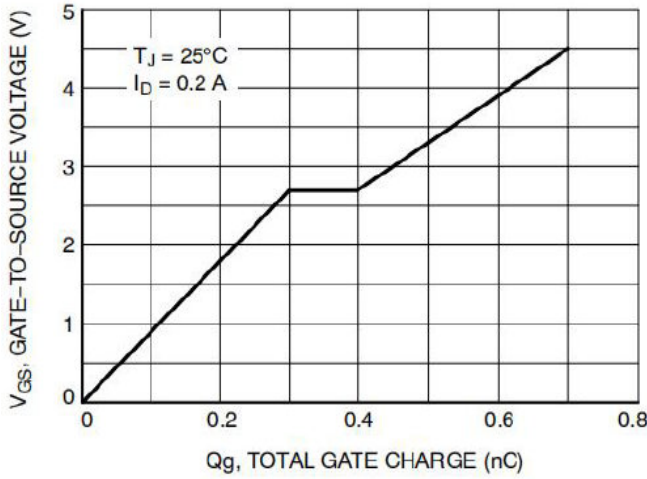


**Figure 5. On-Resistance vs. Gate-Source Voltage**

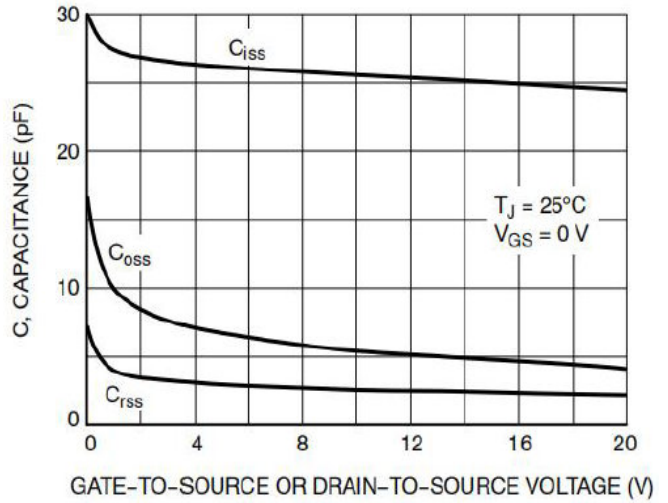


**Figure 6 Diode Forward Voltage vs. Current**

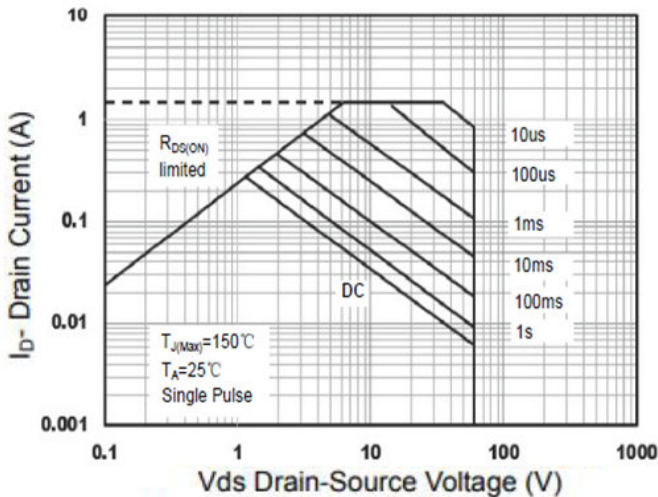
**CHARACTERISTIC CURVES**



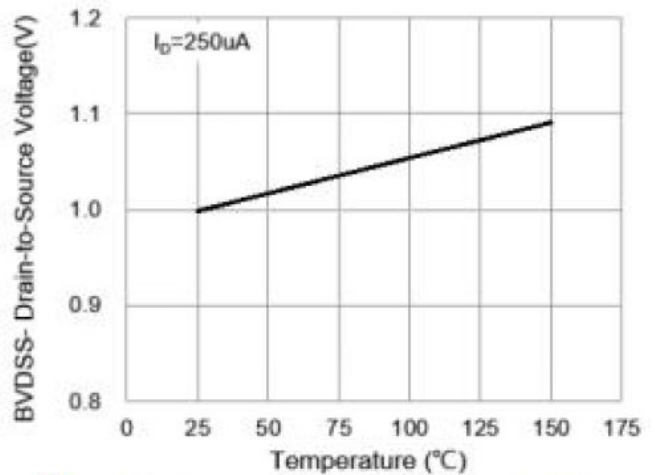
**Figure 7 . Gate-to-Source and Drain-to-Source Voltage vs. Total Charge**



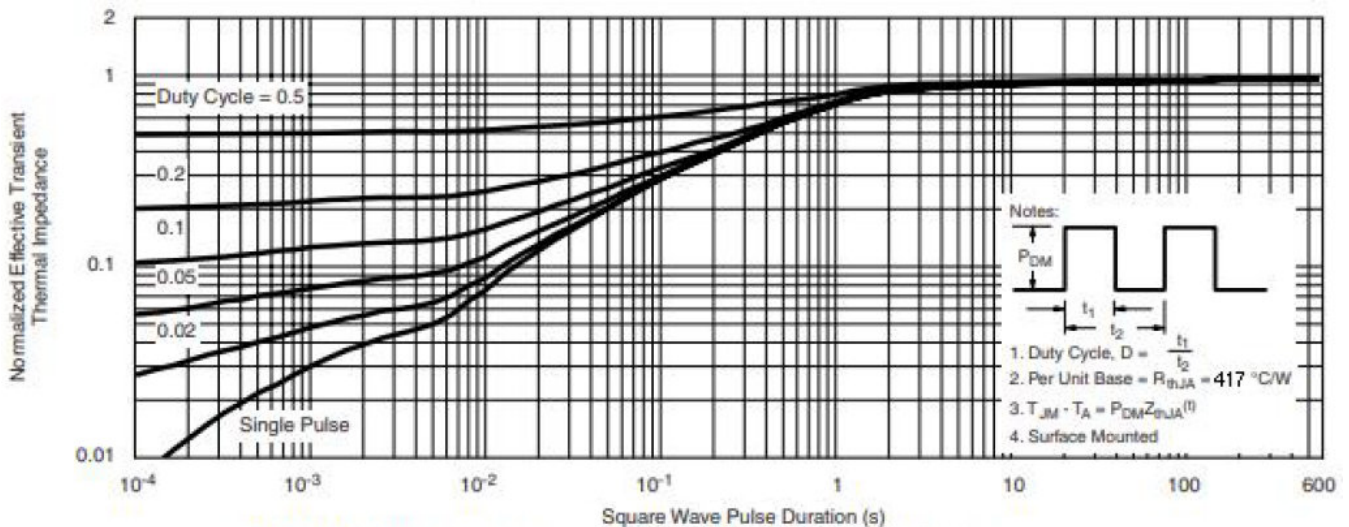
**Figure 8 . Capacitance Variation**



**Figure 9 : Safe Operation Area**



**Figure 10 : Breakdown Voltage vs. Temperature**



**Figure 11 : Normalized Thermal Transient Impedance, Junction-to-Ambient**