

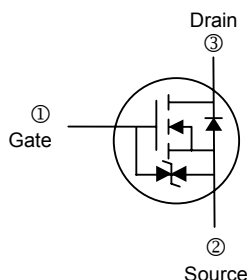
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

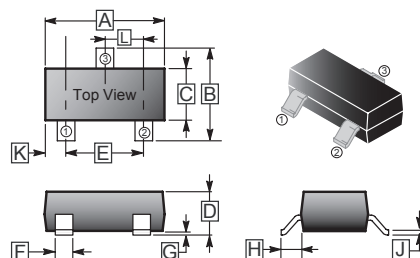
- 2 kV ESD Protection
- Lower On-resistance: 2Ω
- Low Threshold: 2 V (Typ.)
- Low Input Capacitance: 25 pF
- Fast Switching Performance: 25 ns
- Low Input and Output Leakage

APPLICATIONS

- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- Battery Operated Systems
- Solid-State Relays



SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.04	G	0.09	0.18
B	2.10	2.55	H	0.45	0.60
C	1.20	1.40	J	0.08	0.177
D	0.89	1.15	K	0.6 REF.	
E	1.78	2.04	L	0.89	1.02
F	0.30	0.50			

PACKAGE INFORMATION

Weight: 0.07800g (Approximately)

MARKING CODE

7002K

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit	Test Conditions
		N-Ch		
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current ²	I_D	300	mA	@ $T_A = 25^\circ\text{C}$
Continuous Drain Current ²		190		@ $T_A = 100^\circ\text{C}$
Pulsed Drain Current ¹	I_{DM}	800		
Power Dissipation ²	P_D	0.35	W	@ $T_A = 25^\circ\text{C}$
		0.14		@ $T_A = 100^\circ\text{C}$
Thermal Resistance Junction-Ambient	Max. $R_{\theta JA}$	350	$^\circ\text{C/W}$	
Operating Junction and Storage Temperature	T_J, T_{STG}	-55 ~ +150	$^\circ\text{C}$	

Notes:

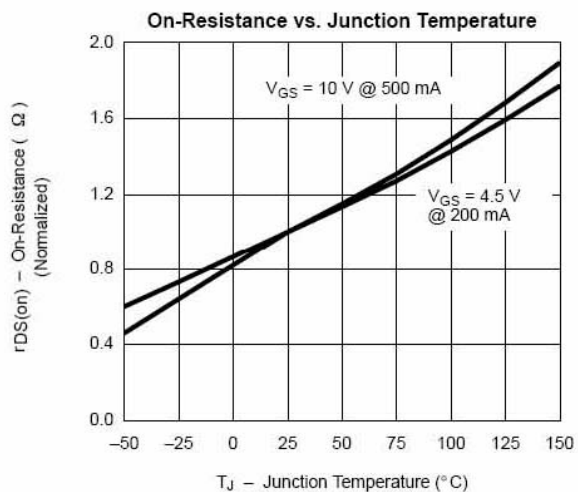
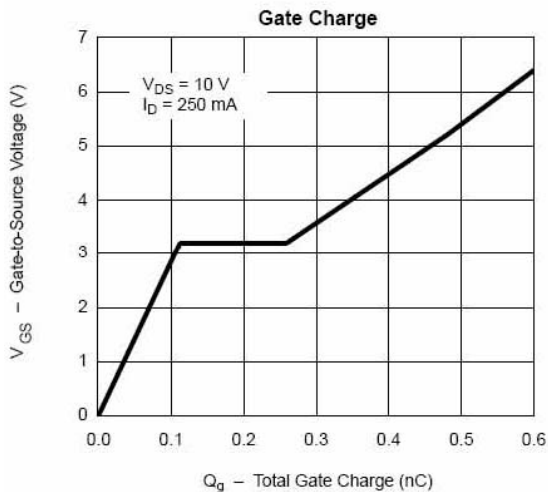
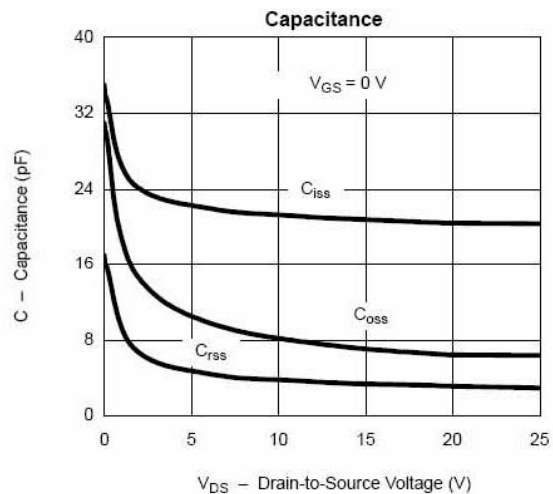
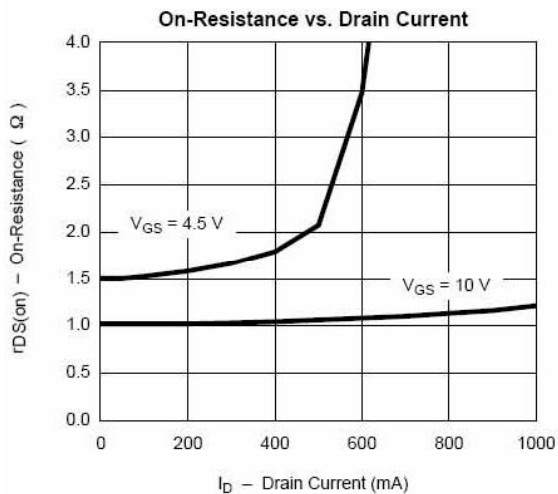
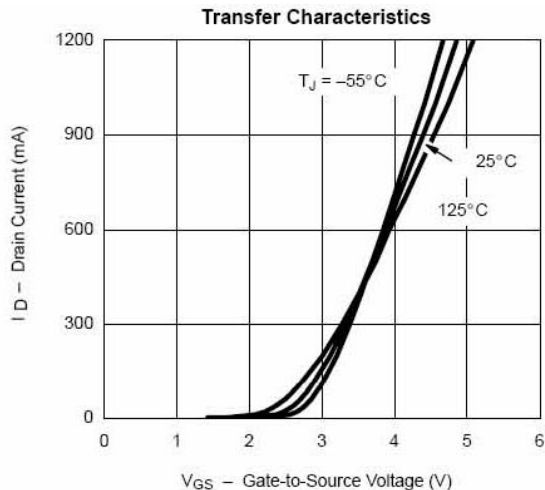
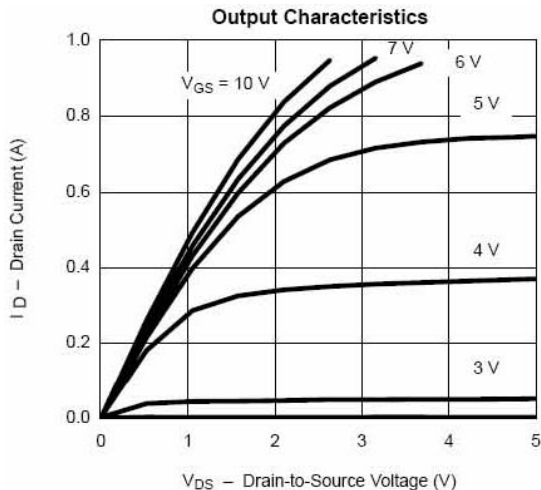
1. Pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 board.

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

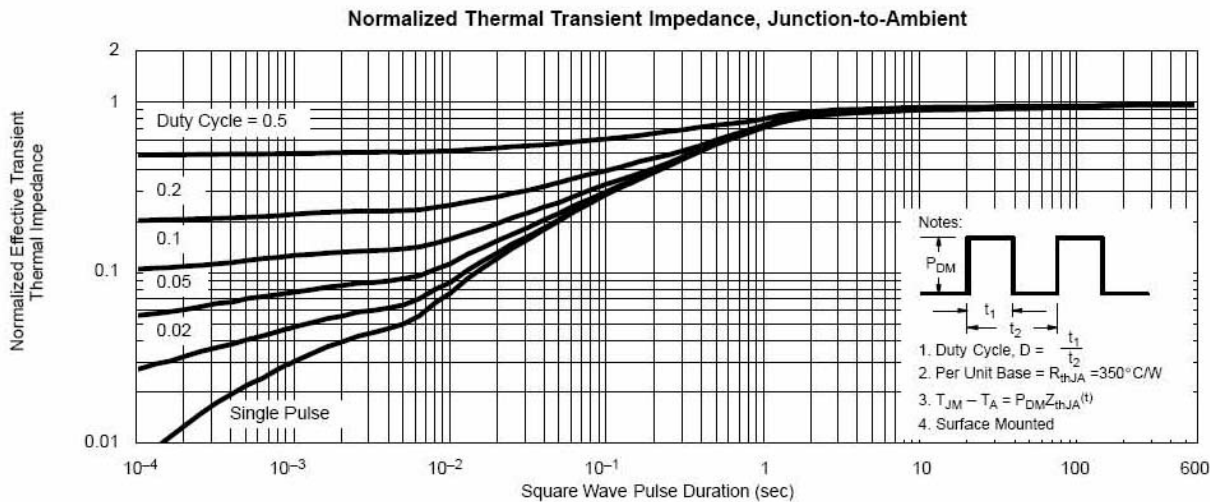
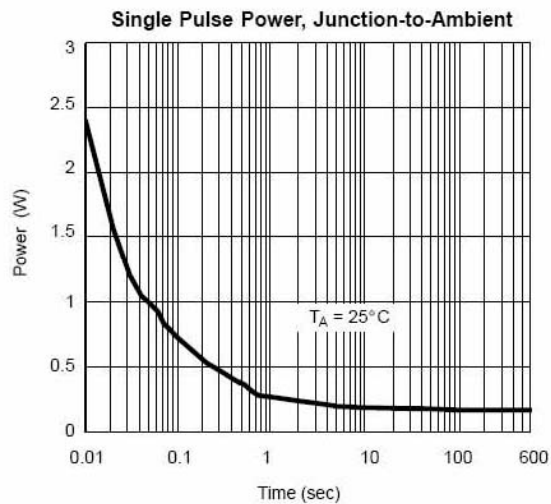
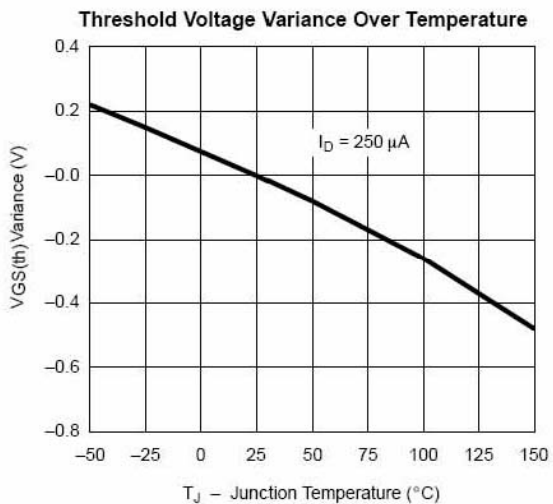
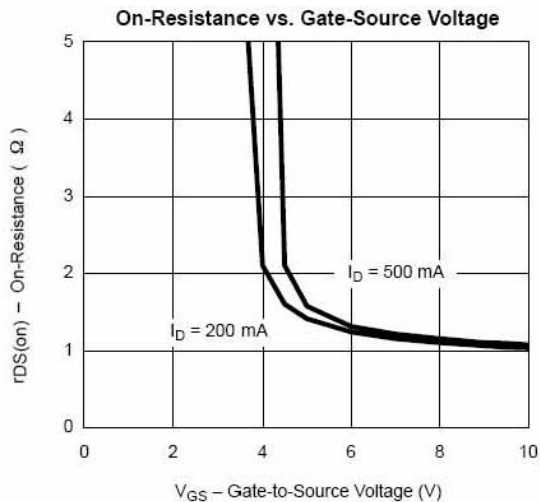
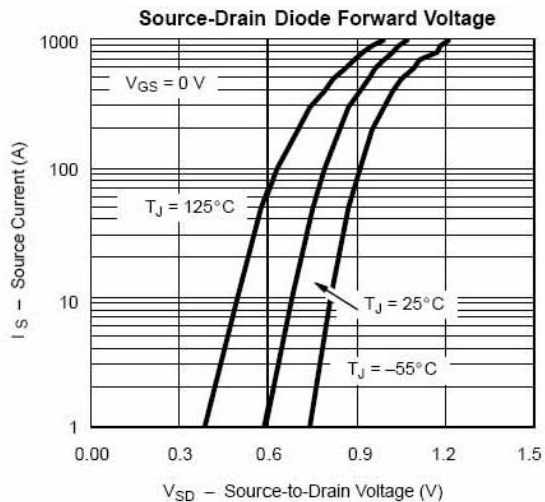
Parameter	Symbol	Min.	Typ. ²	Max.	Unit	Test Conditions
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	-	-	V	$V_{GS} = 0, I_D = 10\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	1.0	-	2.5		$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Forward Transconductance ²	g_{fs}	100	-	-	mS	$V_{DS} = 10\text{V}, I_D = 200\text{mA}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 10	μA	$V_{DS} = 0, V_{GS} = \pm 20\text{V}$
		-	-	± 150	nA	$V_{DS} = 0, V_{GS} = \pm 10\text{V}$
		-	-	± 1000		$V_{DS}=0, V_{GS}=\pm 10\text{V}, T_J=85^\circ\text{C}$
		-	-	± 100		$V_{DS} = 0, V_{GS} = \pm 5\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	10	μA	$V_{DS} = 50, V_{GS} = 0$
		-	-	100		$V_{DS} = 50\text{V}, V_{GS}=0, T_J=85^\circ\text{C}$
		-	-	1	μA	$V_{DS} = 60\text{V}, V_{GS} = 0$
		-	-	500		$V_{DS}=60\text{V}, V_{GS}=0, T_J=125^\circ\text{C}$
On-State Drain Current ²	$I_{D(ON)}$	800	-	-	mA	$V_{GS} = 10\text{V}, V_{DS} = 7.5\text{V}$
		500	-	-		$V_{GS} = 4.5\text{V}, V_{DS} = 10\text{V}$
Drain-Source On-Resistance ²	$r_{DS(ON)}$	-	-	2	Ω	$V_{GS} = 10\text{V}, I_{DS} = 500\text{mA}$
		-	-	4		$V_{GS} = 4.5\text{V}, I_{DS} = 200\text{mA}$
Diode Forward Voltage	$V_{DS(ON)}$	-	-	1.3	V	$I_S = 200\text{mA}, V_{GS} = 0$
Dynamic²						
Total Gate Charge	Qg	-	0.4	0.6	nC	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=250\text{mA}$
Input Capacitance	C_{iss}	-	30	-	pF	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$
Output Capacitance	C_{oss}	-	6	-		
Reverse Transfer Capacitance	C_{rss}	-	2.5	-		
Switching^{2,3}						
Turn-On Time	$t_{(ON)}$	-	-	25	nS	$V_{DD}=30\text{V}, R_L=150\Omega, I_D=200\text{mA}, V_{GEN}=10\text{V}, R_G=10\Omega$
Turn-Off Time	$t_{(OFF)}$	-	-	35		

- Notes:
- $T_A = 25^\circ\text{C}$ unless otherwise noted.
 - For DESIGN AID ONLY, not subject to production testing.
 - Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$
 - Switching time is essentially independent of operating temperature.

CHARACTERISTIC CURVE



CHARACTERISTIC CURVE (N-Ch, cont'd)



CHARACTERISTIC CURVE (N-Ch, cont'd)

