

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

DESCRIPTION

Typical applications are dc-dc converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

FEATURES

- Lower Gate Charge
- Small Package Outline

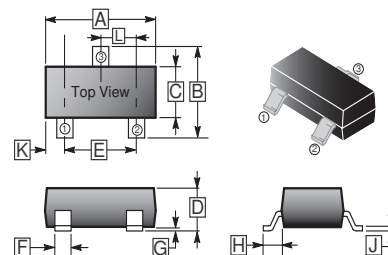
MARKING

J1

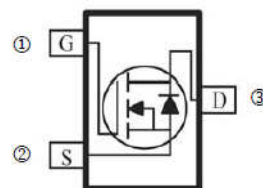
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-323	3K	7 inch

SOT-323



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.100 REF.	
B	1.80	2.45	H	0.525 REF.	
C	1.15	1.35	J	0.08	0.25
D	0.80	1.10	K	-	-
E	1.20	1.40	L	0.650 TYP.	
F	0.20	0.40			



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	200	mA
Pulsed Drain Current ($t_p \leq 10\mu\text{s}$)	I_{DM}	800	mA
Power Dissipation	P_D	150	mW
Maximum Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C} / \text{W}$
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	50	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	0.5	-	1.5	V	$V_{DS}=V_{GS}, I_D=1\text{mA}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	0.1	μA	$V_{DS}=25\text{V}, V_{GS}=0$
		-	-	0.5		$V_{DS}=50\text{V}, V_{GS}=0$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	5.6	10	Ω	$V_{GS}=2.75\text{V}, I_D<200\text{mA},$ $T_A=-40^\circ\text{C} \sim 85^\circ\text{C}$
		-	-	3.5		$V_{GS}=5\text{V}, I_D=200\text{mA}$
Forward Transconductance	g_{fs}	100	-	-	mS	$V_{DS}=25\text{V}, I_D=200\text{mA}, f=1\text{KHz}$
Switch²						
Turn-on Delay Time ¹	$T_{d(on)}$	-	20	-	nS	$V_{DD}=30\text{V},$ $I_D=200\text{mA}$
Turn-off Delay Time	$T_{d(off)}$	-	20	-		
Dynamic						
Input Capacitance	C_{iss}	-	40	-	pF	$V_{GS}=0,$ $V_{DS}=25\text{V},$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	12	-		
Reverse Transfer Capacitance	C_{rss}	-	3.5	-		

Notes:

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$.
2. Switching characteristics are independent of operating junction temperature.

CHARACTERISTIC CURVE

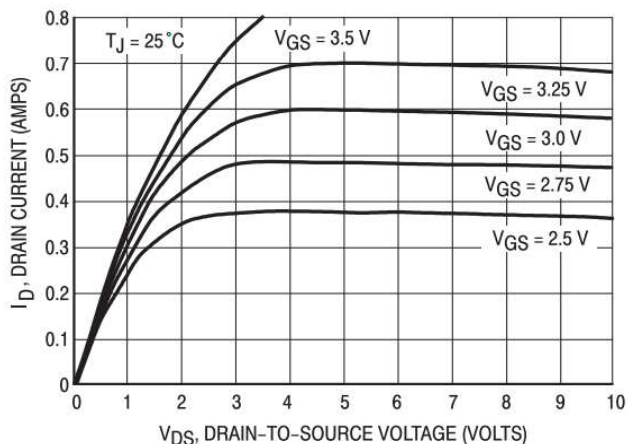


Fig.1 On-Region Characteristics

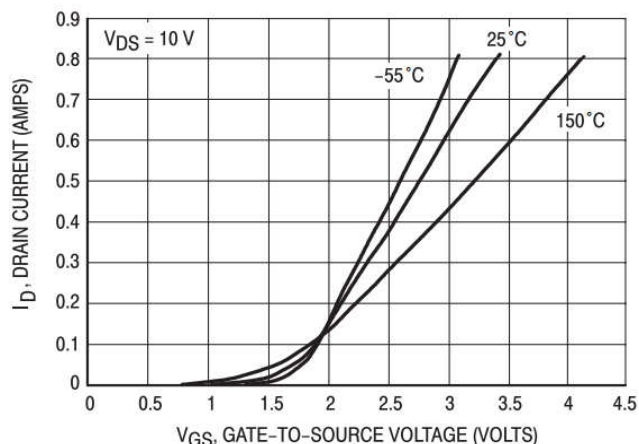


Fig.2 Transfer Characteristics

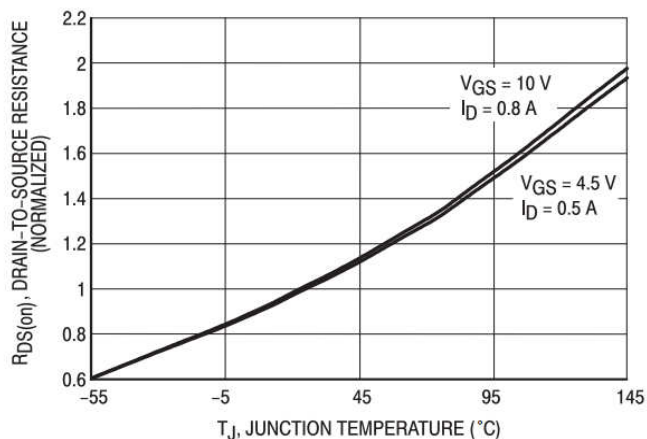


Fig.3 On-Resistance Variation with Temperature

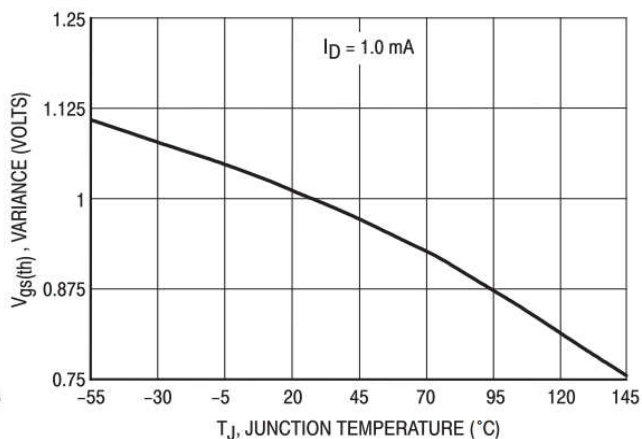


Fig.4 Threshold Voltage Variation with Temperature

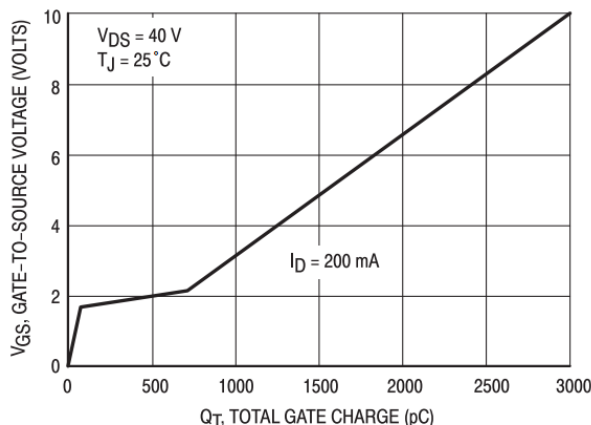


Fig.5 Gate Charge

CHARACTERISTIC CURVE

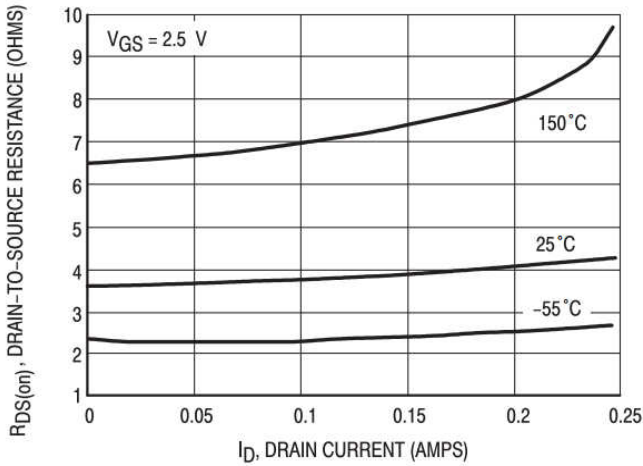


Fig.6 On-Resistance versus Drain Current

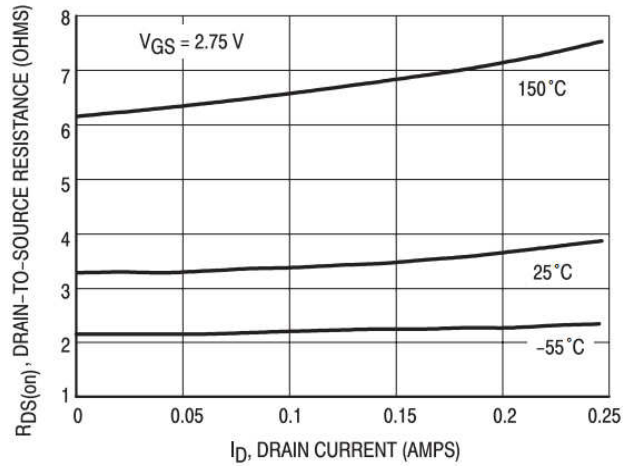


Fig.7 On-Resistance versus Drain Current

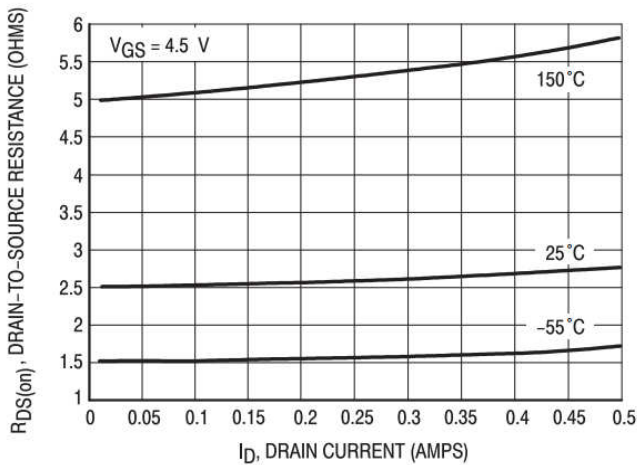


Fig.8 On-Resistance versus Drain Current

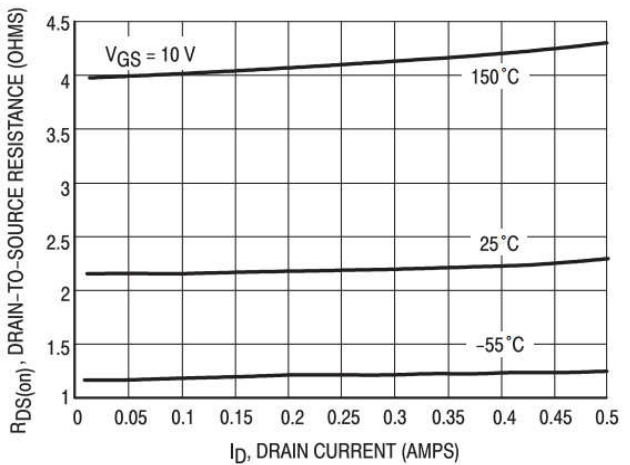


Fig.9 On-Resistance versus Drain Current

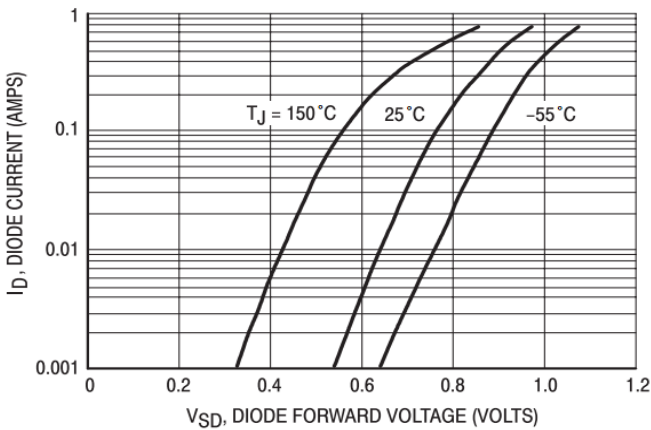


Fig.10 Body Diode Forward Voltage

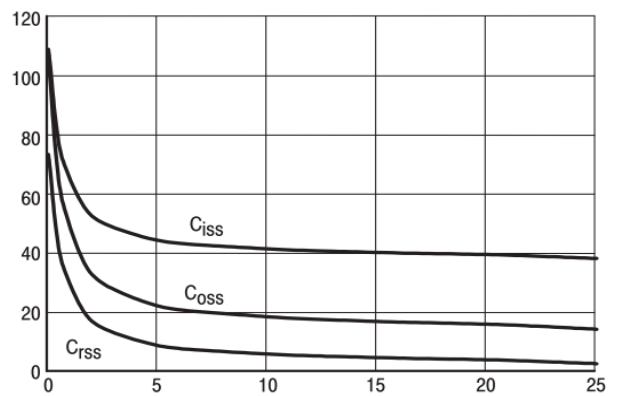


Fig.11 Capacitance