

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

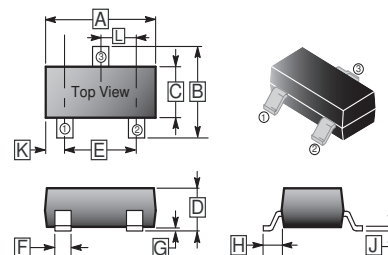
MARKING

J1

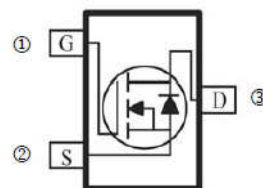
PACKAGE INFORMATION

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	$T_A=25^\circ\text{C}$	I_D	200	mA
Pulsed Drain Current ($t_p \leq 10\mu\text{s}$)		I_{DM}	800	mA
Power Dissipation	$T_A=25^\circ\text{C}$	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 =250μA
Gate-Threshold Voltage	V _{GS(th)}	0.5	-	1.5	V	V _{DS} =V _{GS} , I _D =1mA
Gate-Body Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} =±20V
Drain-Source Leakage Current	I _{DSS}	-	-	0.1	μA	V _{DS} =25V, V _{GS} =0
		-	-	0.5		V _{DS} =50V, V _{GS} =0
Drain-Source On-Resistance ¹	R _{DS(ON)}	-	5.6	10	Ω	V _{GS} =2.75V, I _D <200mA, T _A =-40℃ ~85℃
		-	-	3.5		V _{GS} =5V, I _D =200mA
Forward Transconductance	g _{fs}	100	-	-	mS	V _{DS} =25V, I _D =200mA, f=1KHz
Switch ²						
Turn-on Delay Time ¹	T _{d(on)}	-	20	-	nS	V _{DD} =30V, I _D =200mA
Turn-off Delay Time	T _{d(off)}	-	20	-		
Dynamic						
Input Capacitance	C _{iss}	-	40	-	pF	V _{GS} =0, V _{DS} =25V, f=1.0MHz
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

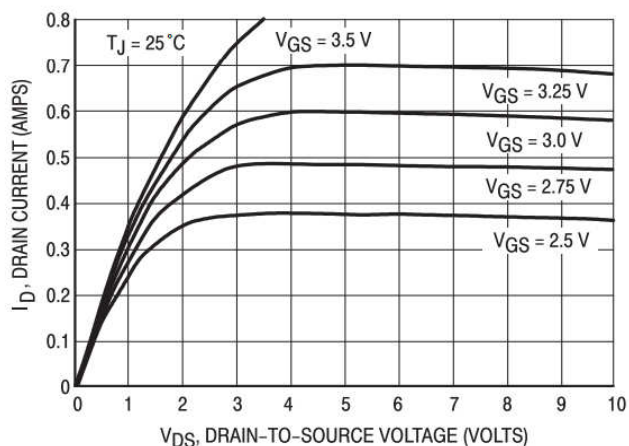


Fig.1 On-Region Characteristics

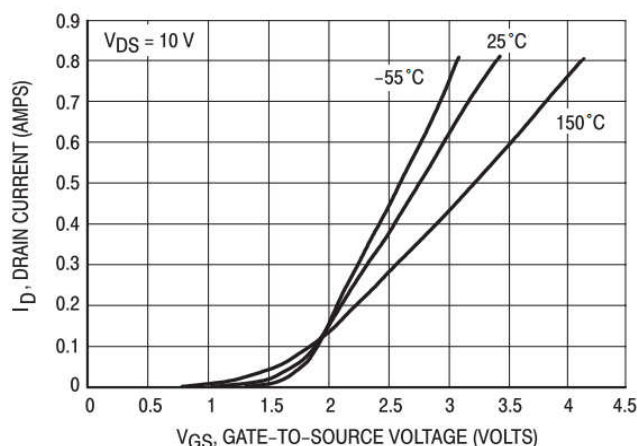


Fig.2 Transfer Characteristics

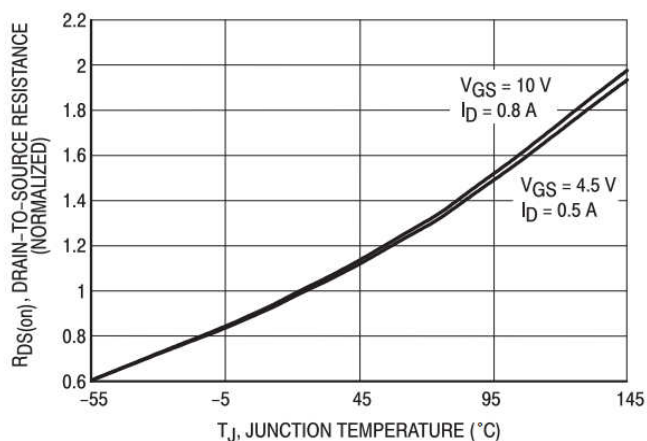


Fig.3 On-Resistance Variation with Temperature

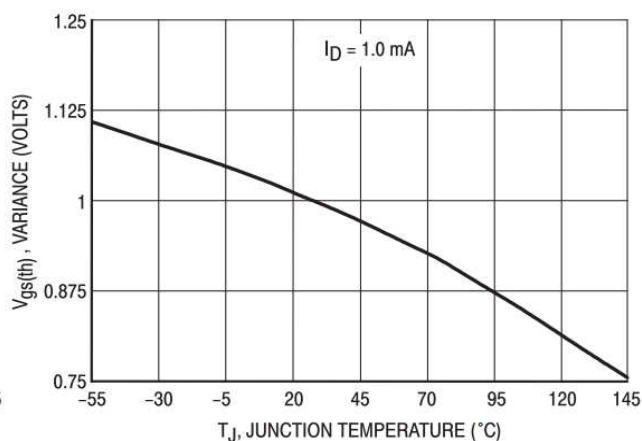


Fig.4 Threshold Voltage Variation with Temperature

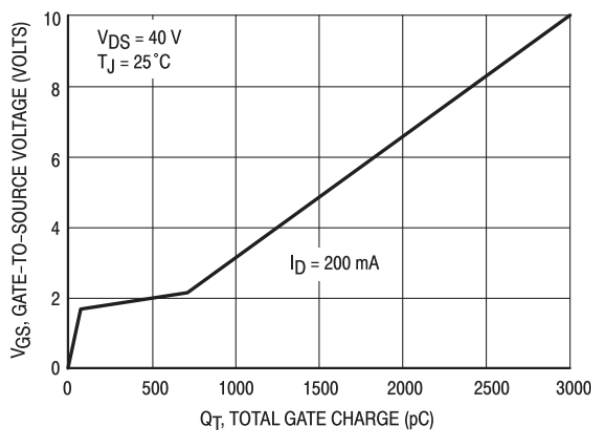


Fig.5 Gate Charge

CHARACTERISTIC CURVE

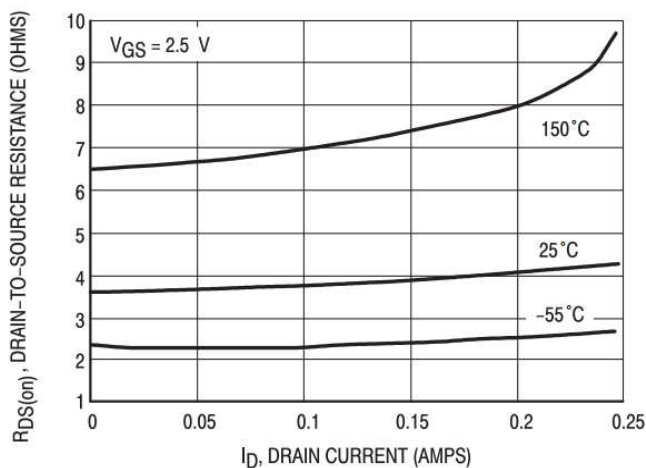


Fig.6 On-Resistance versus Drain Current

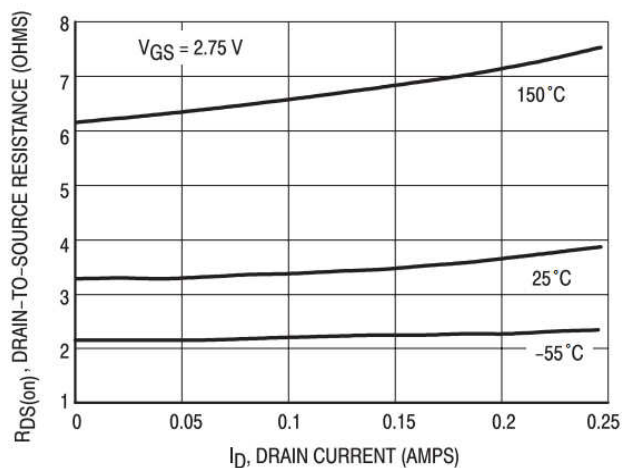


Fig.7 On-Resistance versus Drain Current

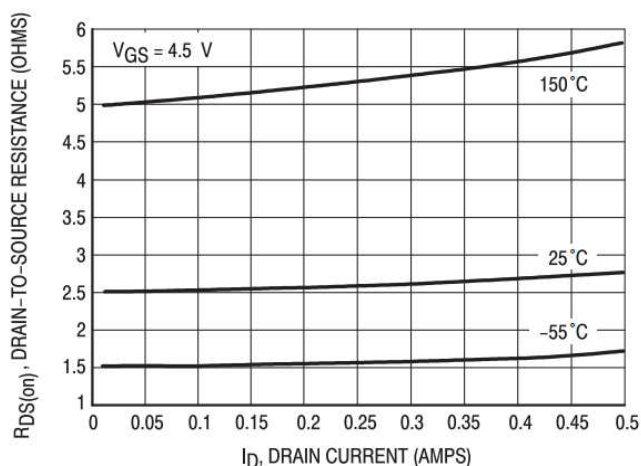


Fig.8 On-Resistance versus Drain Current

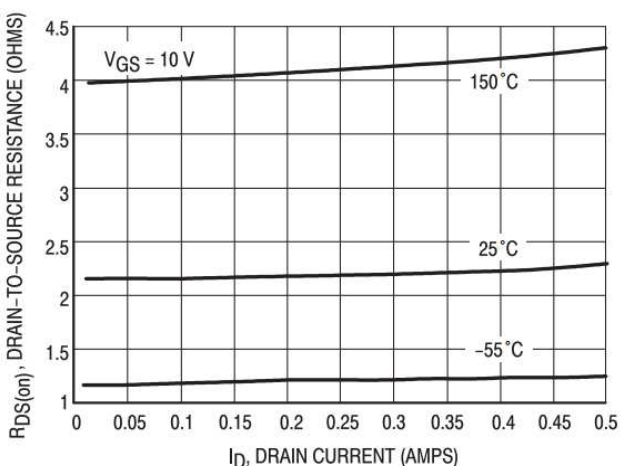


Fig.9 On-Resistance versus Drain Current

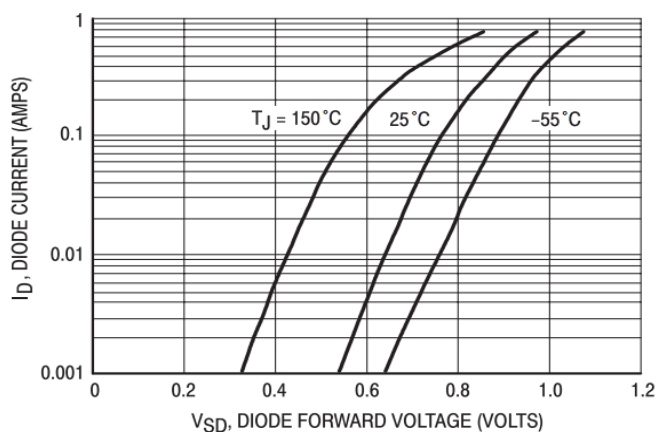


Fig.10 Body Diode Forward Voltage

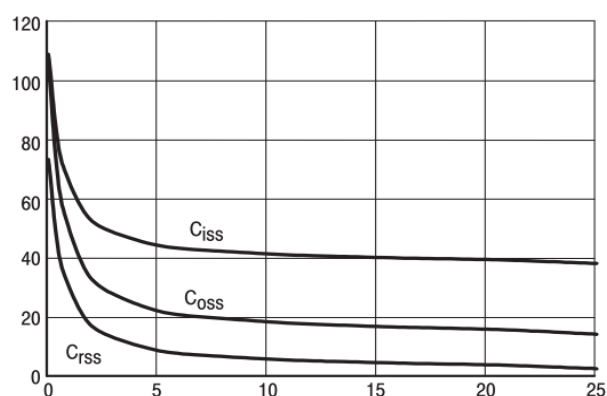


Fig.11 Capacitance