

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

FEATURES

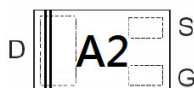
- Surface Mount Package
- N-Channel Switch with Low $R_{DS(ON)}$
- Fast Switching Speed: 10nS
- ESD Protected Gate

APPLICATIONS

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics

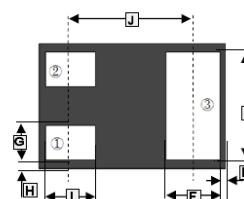
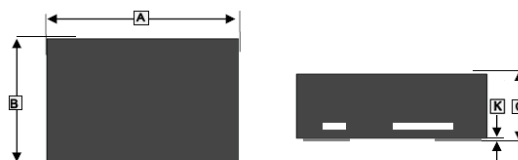
MARKING

Top View



*Color Band Denotes Drain (Pin.3)

SOT-883B



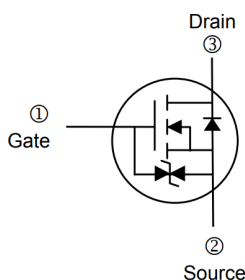
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	0.95	1.05	G	0.10	0.20
B	0.55	0.65	H	0.055TYP.	
C	0.30	0.40	I	0.19	0.29
D	0.44	0.54	J	0.64 TYP.	
E	0.05TYP.		K	0	0.05
F	0.22	0.32			

PACKAGE INFORMATION

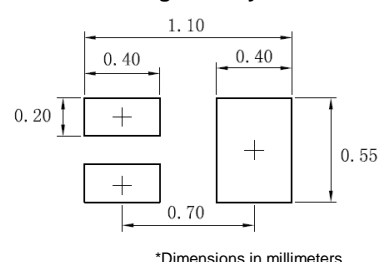
Package	MPQ	Leader Size
SOT-883B	10K	7 inch

ORDER INFORMATION

Part Number	Type
SWB2004E-C	Lead (Pb)-free and Halogen-free



Mounting Pad Layout



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current ¹	I_D	$T_A=25^\circ\text{C}$	0.5
		$T_A=85^\circ\text{C}$	0.35
Pulsed Drain Current ²	I_{DM}	1	A
Total Power Dissipation ¹	P_D	450	mW
Operating Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$
Thermal Resistance Ratings			
Thermal Resistance from Junction-Ambient ¹	$R_{\theta JA}$	278	$^\circ\text{C/W}$

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

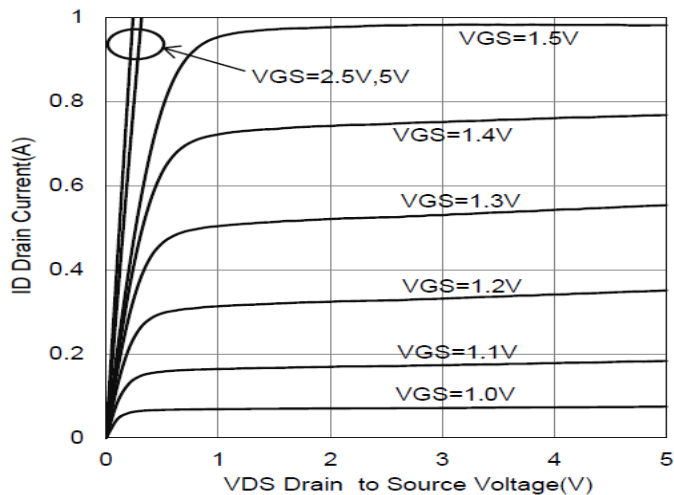
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	20	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=16\text{V}, V_{GS}=0$
		-	-	30		$V_{DS}=16\text{V}, V_{GS}=0, T_J=85^\circ\text{C}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 5	μA	$V_{DS}=0, V_{GS}=\pm 8\text{V}$
Gate Threshold Voltage	$V_{GS(th)}$	0.53	-	0.95	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Drain-Source On-Resistance ³	$R_{DS(ON)}$	-	-	400	m Ω	$V_{GS}=4.5\text{V}, I_D=0.5\text{A}$
		-	-	650		$V_{GS}=2.5\text{V}, I_D=0.2\text{A}$
		-	-	800		$V_{GS}=1.8\text{V}, I_D=0.1\text{A}$
		-	500	-		$V_{GS}=1.5\text{V}, I_D=0.05\text{A}$
		-	1000	-		$V_{GS}=1.2\text{V}, I_D=0.02\text{mA}$
Forward Transconductance ³	g_{fs}	-	1	-	S	$V_{DS}=10\text{V}, I_D=0.4\text{A}$
Diode Forward Voltage ³	V_{SD}	-	0.7	1.3	V	$I_S=0.5\text{A}, V_{DS}=0$
Total Gate Charge	Q_g	-	0.75	-	nC	$V_{DS}=10\text{V}$ $V_{GS}=4.5\text{V}$ $I_D=250\text{mA}$
Gate-Source Charge	Q_{gs}	-	0.075	-		
Gate-Drain Charge	Q_{gd}	-	0.225	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=10\text{V}$ $V_{GS}=4.5\text{V}$ $R_{GEN}=10\Omega$ $I_D=200\text{mA}$
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	25	-		
Fall Time	T_f	-	11	-		
Input Capacitance	C_{iss}	-	43	-	pF	$V_{DS}=10\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	15	-		
Reverse Transfer Capacitance	C_{rss}	-	7	-		

Notes:

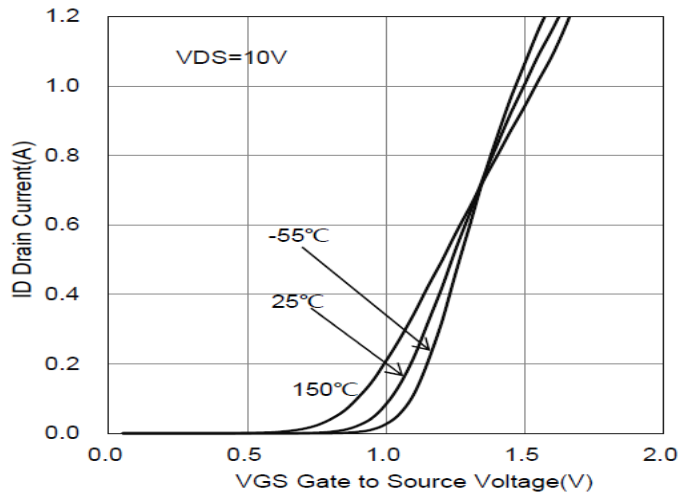
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse width limited by maximum junction temperature.
3. Pulse Test: pulse width=300 μs , duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES

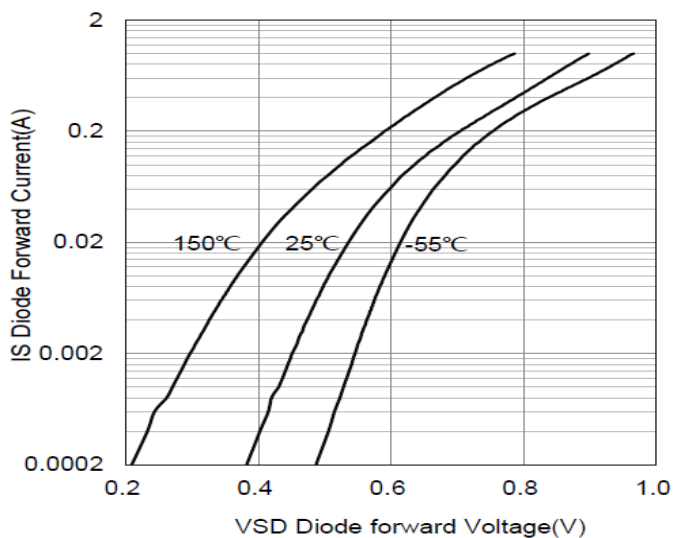
ID vs. VDS



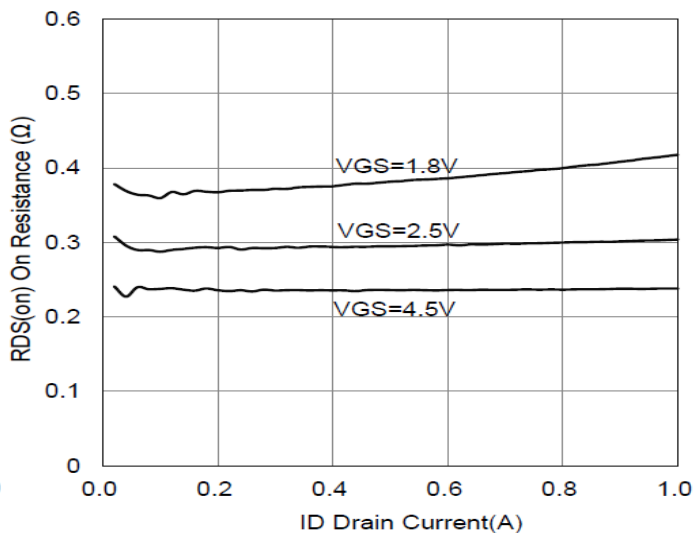
ID vs. VGS



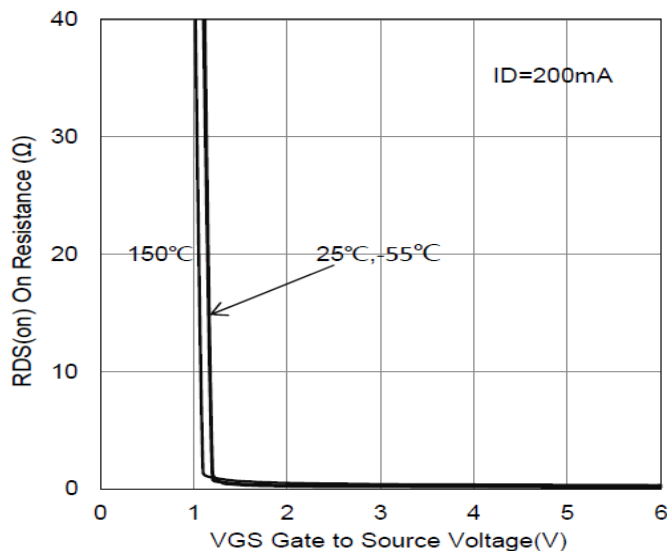
IS vs. VSD



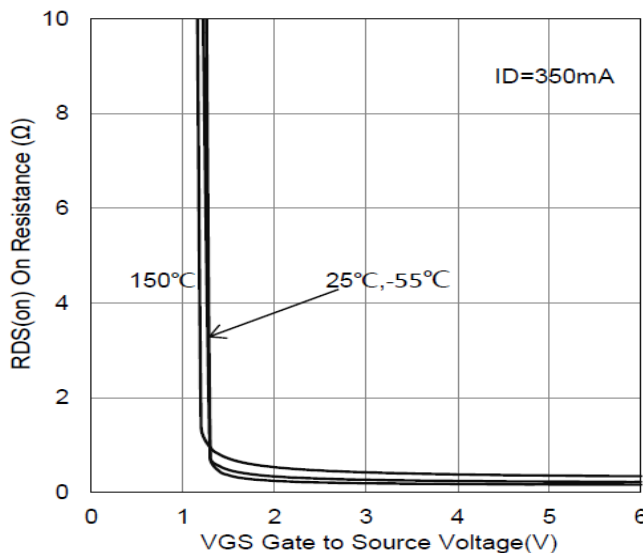
RDS(on) vs. ID



RDS(on) vs. VGS (ID=200mA)

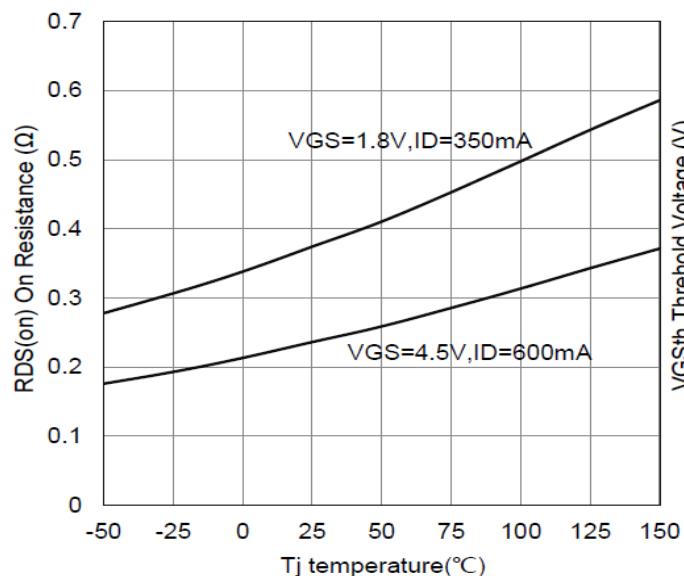


RDS(on) vs. VGS (ID=350mA)

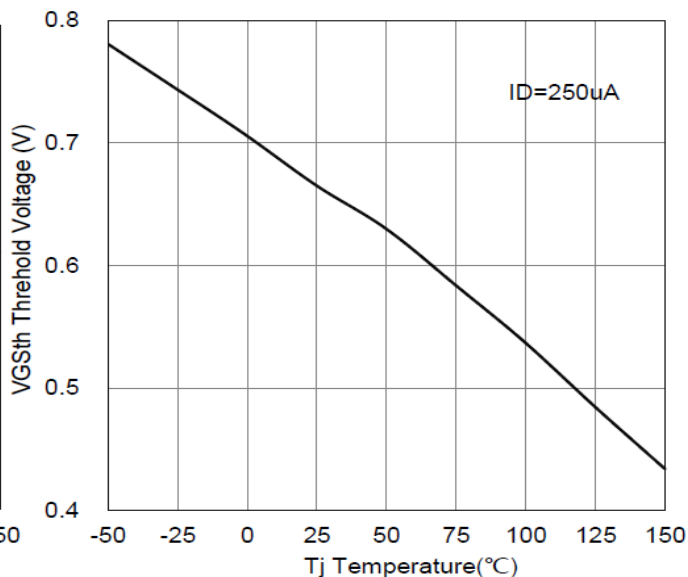


CHARACTERISTIC CURVES

RDS(on) vs. Tj



VGsth vs. Tj



Capacitance

