

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

FEATURES

- ESD Protected
- Low $R_{DS(ON)}$
- Surface Mount Package

APPLICATIONS

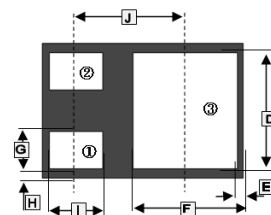
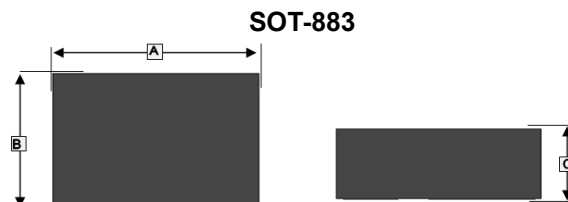
- Low Side Load Switch
- Level Shift Circuits
- DC-DC Converter
- Portable Applications i.e. DSC, PDA, Cell Phone, etc.

MARKING

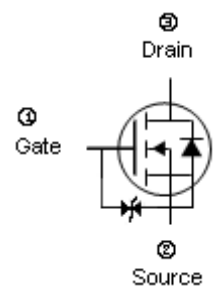
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PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-883	10K	7 inch



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	0.95	1.05	F	0.40	0.55
B	0.55	0.65	G	0.16	0.22
C	0.33	0.63	H	0.055TYP.	
D	0.44	0.55	I	0.25	0.37
E	0.055TYP.		J	0.5 TYP.	



MAXIMUM RATINGS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit	
Drain-Source Voltage		V_{DSS}	60	V	
Gate-Source Voltage		V_{GS}	±20	V	
Drain Current ¹	Steady State	I_D	$T_A=25^\circ\text{C}$	320	mA
			$T_A=85^\circ\text{C}$	230	
	t<5s		$T_A=25^\circ\text{C}$	380	
			$T_A=85^\circ\text{C}$	270	
Pulsed Drain Current (tp=10µs)		I_{DM}	1.5	A	
Source Current (Body Diode)		I_S	300	mA	
Power Dissipation Steady State ¹		P_D	250	mW	
Gate-Source ESD Rating(HBM, Method 3015)		ESD	2	kV	
Lead Temperature for Soldering Purposes (1/8" from case for 10s)		T_L	260	°C	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C	
Thermal Resistance Rating					
Thermal Resistance from Junction-Ambient ¹		$R_{\theta JA}$	500	°C/W	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Drain-Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$	-	71	-	mV/ $^\circ\text{C}$	
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=60V, V_{GS}=0, T_J=25^\circ\text{C}$
		-	-	500	μA	$V_{DS}=60V, V_{GS}=0, T_J=125^\circ\text{C}$
		-	-	100	nA	$V_{DS}=50V, V_{GS}=0, T_J=25^\circ\text{C}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 10	μA	$V_{DS}=0V, V_{GS}=\pm 20V$
Gate Threshold Voltage ²	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Negative Threshold Temperature Coefficient ²	$V_{GS(th)}/T_J$	-	4	-	mV/ $^\circ\text{C}$	
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	1.8	Ω	$V_{GS}=10V, I_D=500mA$
		-	-	2.5	Ω	$V_{GS}=5V, I_D=50mA$
Forward Transfer conductance ²	g_{fs}	-	80	-	S	$V_{DS}=5V, I_D=200mA$
Total Gate Charge	$Q_{g(tot)}$	-	0.7	-	nC	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=200mA$
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 ³	$T_{d(on)}$	-	9.9	-	nS	$V_{DD}=10V$ $V_{GS}=10V$ $I_D=500mA$
Rise Time ³	T_r	-	5	-		
Turn-Off Delay Time ³	$T_{d(off)}$	-	39.4	-		
Fall Time ³	T_f	-	17.9	-		
Input Capacitance	C_{iss}	-	32.8	-	pF	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$
Output Capacitance	C_{oss}	-	5.4	-		
Reverse Transfer Capacitance	C_{rss}	-	2.9	-		
Drain-Source Diode						
Forward Diode Voltage	V_{SD}	-	-	1.4	V	$V_{GS}=0V, I_S=115mA, T_J=25^\circ\text{C}$
		-	0.7	-		$V_{GS}=0V, I_S=115mA, T_J=85^\circ\text{C}$

Notes:

1. Surface-mounted on FR4 board using 1 in sq pad size (Cu area = 1.127 in sq [1 oz] including traces).
2. Pulse Test: pulse width=300 μs , duty cycle $\leq 2\%$.
3. Switching characteristics are independent of operating junction temperature.

CHARACTERISTIC CURVES

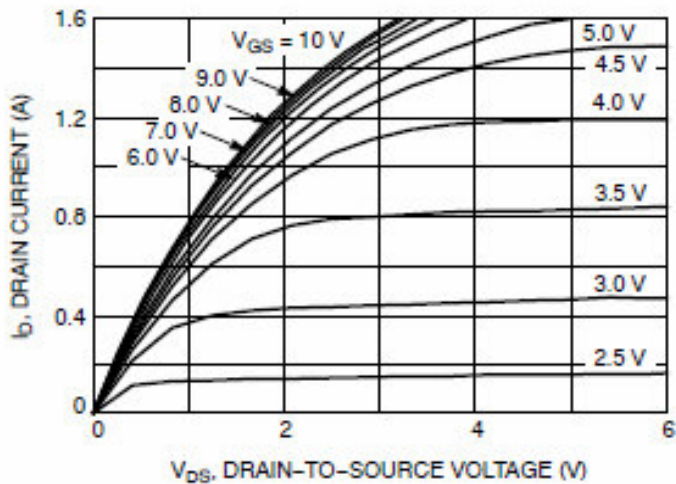


Figure 1. On-Region Characteristics

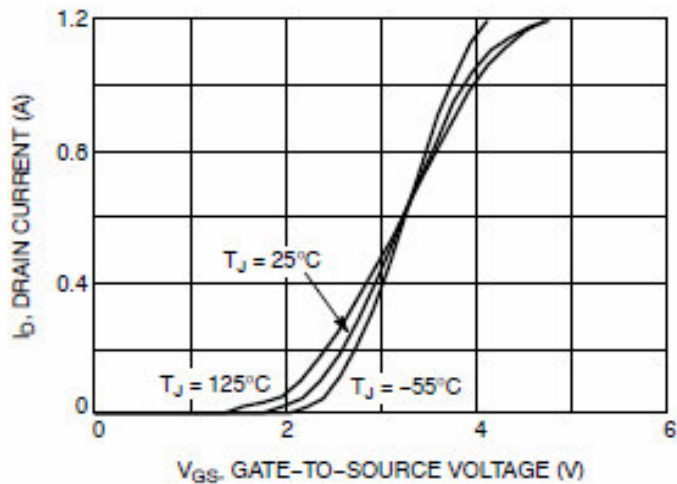


Figure 2. Transfer Characteristics

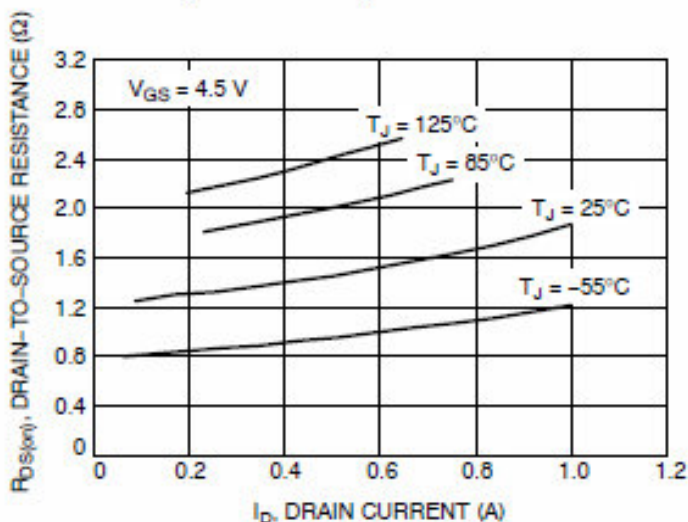


Figure 3. On-Resistance vs. Drain Current and Temperature

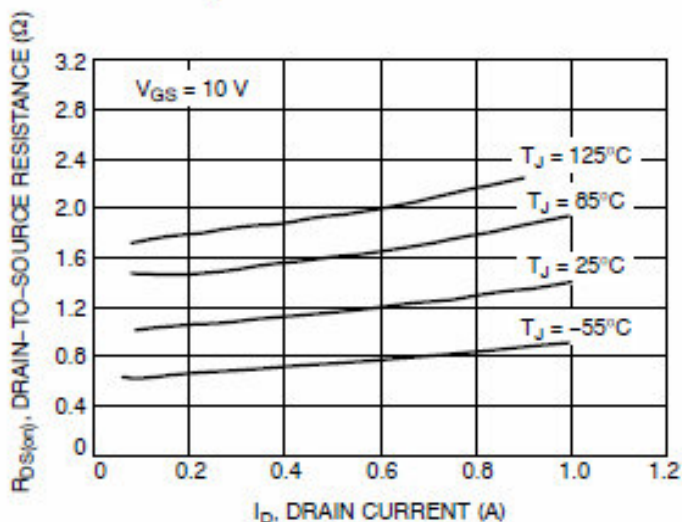


Figure 4. On-Resistance vs. Drain Current and Temperature

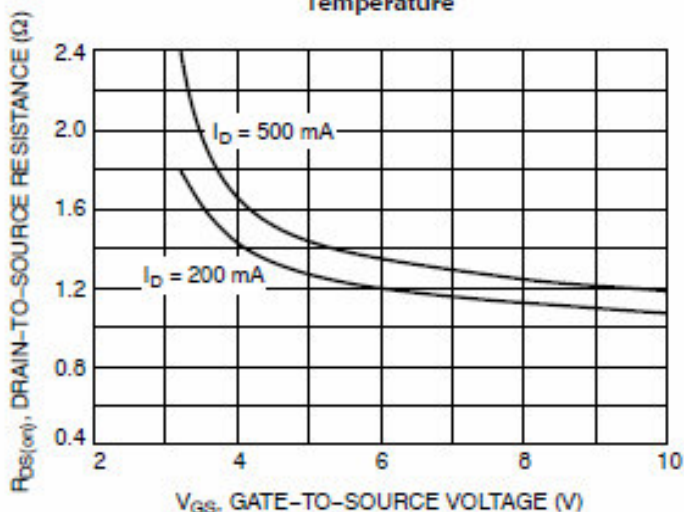


Figure 5. On-Resistance vs. Gate-to-Source Voltage

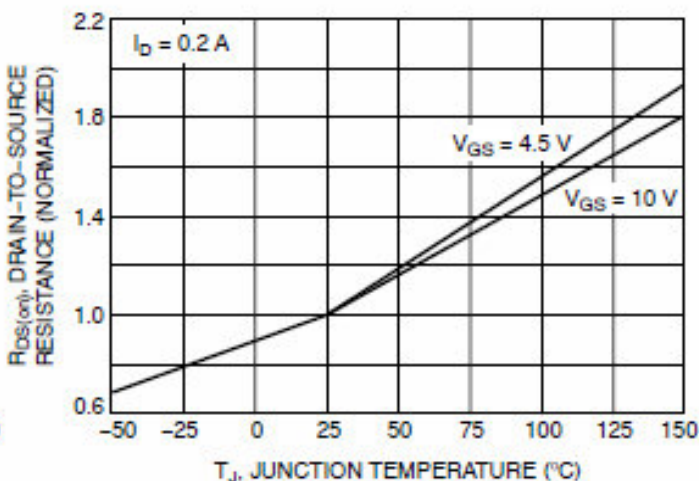


Figure 6. On-Resistance Variation with Temperature

CHARACTERISTIC CURVES

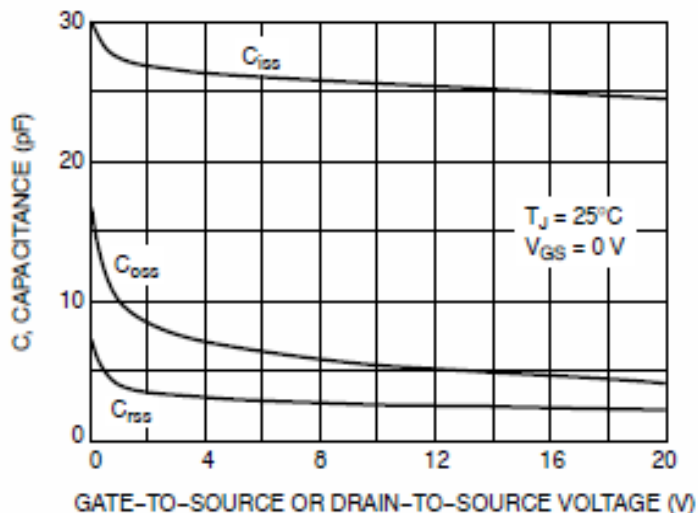


Figure 7. Capacitance Variation

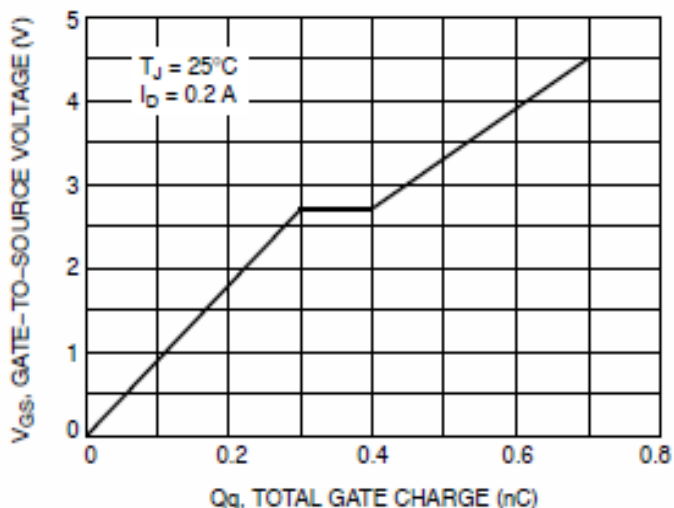


Figure 8. Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

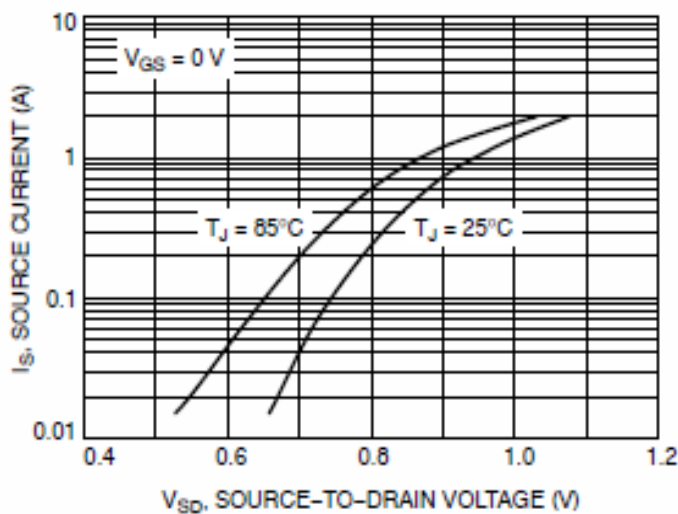


Figure 9. Diode Forward Voltage vs. Current