

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

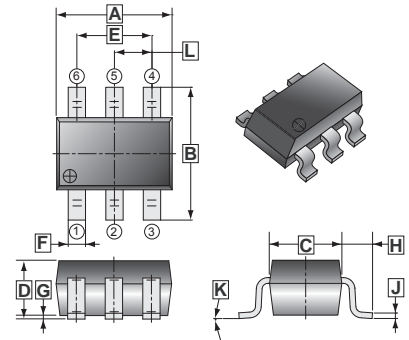
Key Features:

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

Typical Applications:

- Battery Powered Instruments
- Portable Computing
- Mobile Phones
- Fast switch
- GPS Units and Media Players

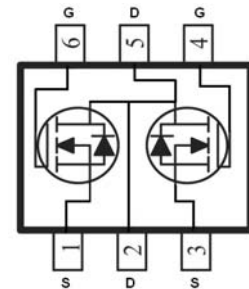
TSOP-6



PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7 inch

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current ¹	I_D	$T_A = 25^\circ\text{C}$	6
		$T_A = 100^\circ\text{C}$	3.6
Pulsed Drain Current ²	I_{DM}	20	A
Continuous Source Current (Diode Conduction) ¹	I_S	1	A
Power Dissipation ¹	P_D	$T_A = 25^\circ\text{C}$	0.83
		$T_A = 100^\circ\text{C}$	0.3
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	$^\circ\text{C}$
Thermal Resistance Ratings			
Maximum Junction to Ambient ¹	$R_{\theta JA}$	$t \leq 10$ sec	110
		Steady State	150

Notes

1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

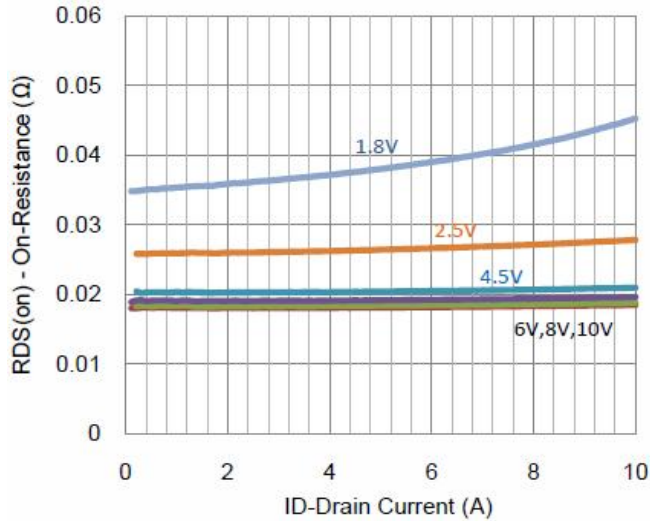
ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate- Source Threshold Voltage	$V_{GS(th)}$	0.5	-	1	V	$V_{DS}=V_{GS}$, $I_D=250\mu A$
Gate-Body Leakage	I_{GSS}	-	-	± 100	nA	$V_{DS}=0$, $V_{GS}= \pm 10V$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=16V$, $V_{GS}=0 V$
		-	-	30		$V_{DS}=16V$, $V_{GS}=0 V$, $T_J= 85^\circ C$
On-State Drain Current	$I_{D(on)}$	10	-	-	A	$V_{DS}=5V$, $V_{GS}=10V$
Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	24.5	m Ω	$V_{GS}=4.5V$, $I_D=6A$
		-	-	38		$V_{GS}=2.5V$, $I_D=5A$
Forward Transconductance	g_{fs}	-	10	-	S	$V_{DS}=10V$, $I_D=6A$
Diode Forward Voltage	V_{SD}	-	0.7	-	V	$I_S=1A$, $V_{GS}=0V$
Dynamic						
Total Gate Charge	Q_g	-	12.5	-	nC	$V_{DS}=10V$, $V_{GS}=4.5V$, $I_D=5.4A$
Gate-Source Charge	Q_{gs}	-	0.7	-		
Gate-Drain Charge	Q_{gd}	-	4.3	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=10V$, $V_{GEN}=4.5V$, $R_{GEN}=6\Omega$, $R_L=10\Omega$, $I_D=1A$
Rise Time	T_r	-	14	-		
Turn-off Delay Time	$T_{d(off)}$	-	30	-		
Fall Time	T_f	-	5	-		
Input Capacitance	C_{iss}	-	700	-	pF	$V_{DS}=10V$, $V_{GS}=0$, $f =1MHz$
Output Capacitance	C_{oss}	-	125	-		
Reverse Transfer Capacitance	C_{rss}	-	110	-		

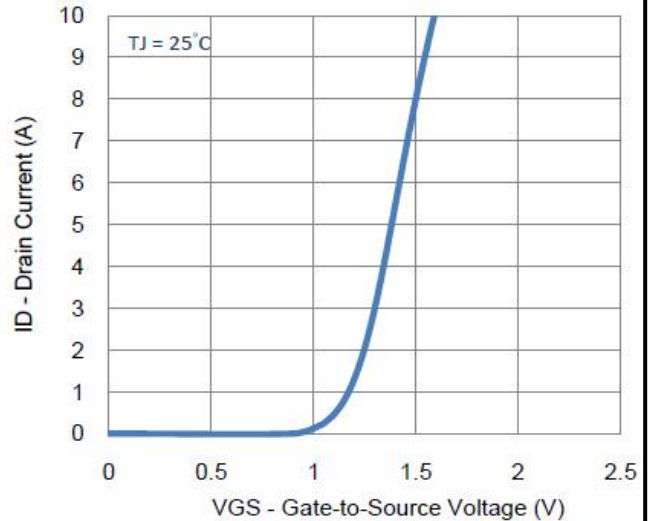
Notes

1. Pulse test : $PW \leq 300\mu s$ duty cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.

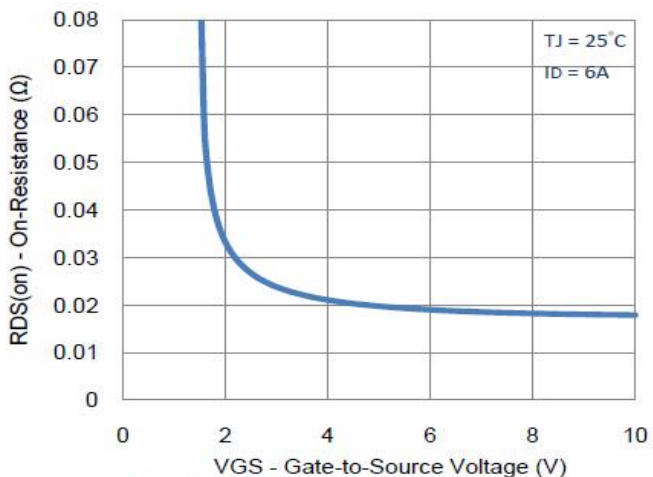
Electrical Characteristics



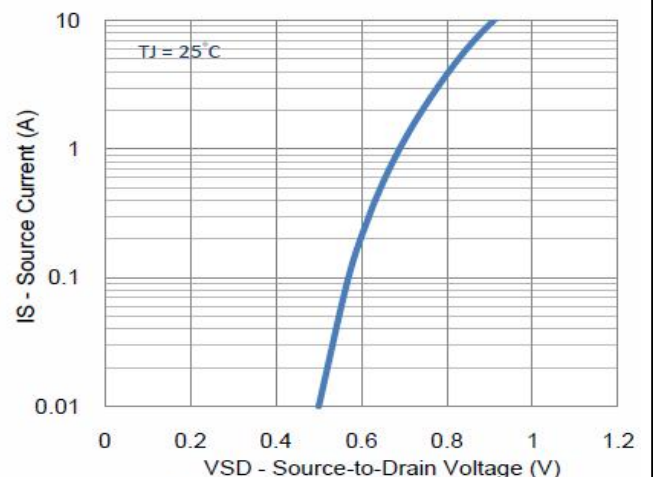
1. On-Resistance vs. Drain Current



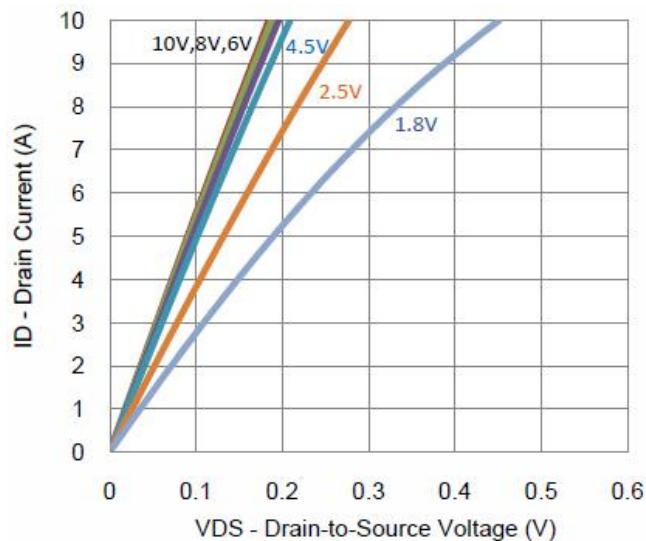
2. Transfer Characteristics



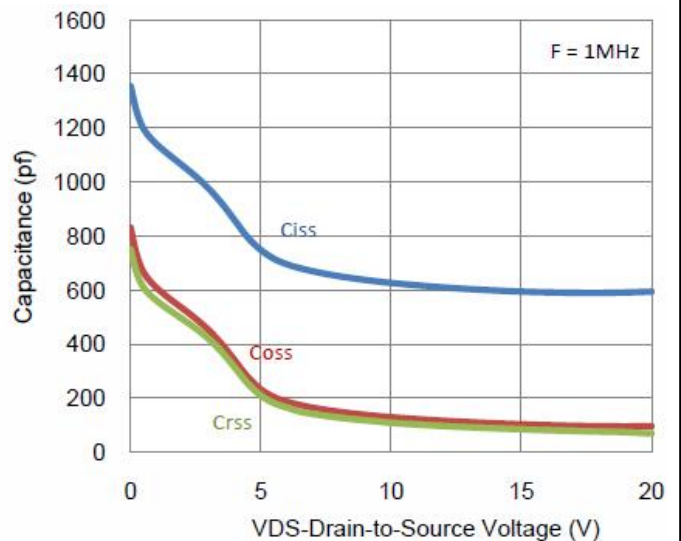
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage



5. Output Characteristics



6. Capacitance

Typical Electrical Characteristics

