

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

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry.

FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Miniature TSOP-6 surface mount package saves board space.
- High power and current handling capability.
- Extended V_{GS} range (± 25) for battery pack applications.

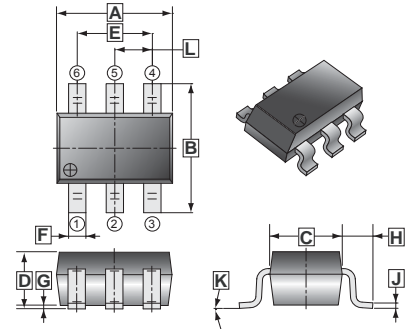
APPLICATION

PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

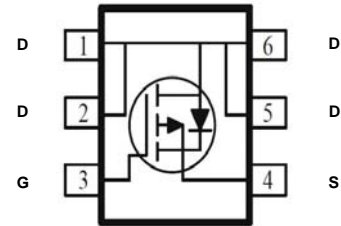
PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7' inch

TSOP-6



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 specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	$T_A=25^\circ\text{C}$	-2.7
		$T_A=70^\circ\text{C}$	-2.2
Pulsed Drain Current ²	I_{DM}	-15	A
Continuous Source Current (Diode Conduction) ¹	I_S	-2.5	A
Power Dissipation ¹	P_D	$T_A=25^\circ\text{C}$	2.0
		$T_A=70^\circ\text{C}$	1.3
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	62.5
		Steady State	110

Notes:

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

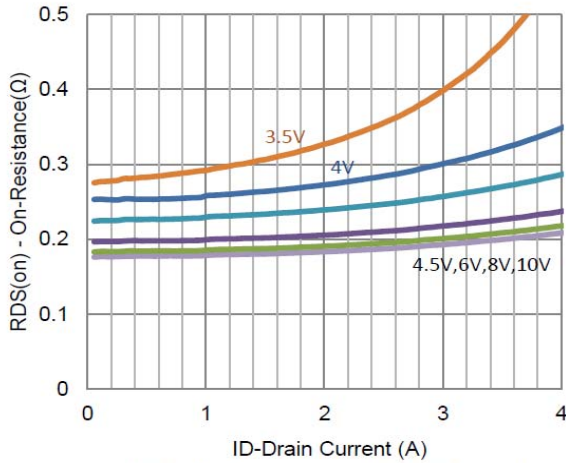
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-	V	$V_{DS} = V_{GS}$, $I_D = -250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	± 100	nA	$V_{DS} = 0$, $V_{GS} = \pm 20\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	$V_{DS} = -48\text{V}$, $V_{GS} = 0$
		-	-	-25		$V_{DS} = -48\text{V}$, $V_{GS} = 0$, $T_J = 55^\circ\text{C}$
On-State Drain Current ¹	$I_{D(on)}$	-5	-	-	A	$V_{DS} = -5\text{V}$, $V_{GS} = -10\text{V}$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	-	180	m Ω	$V_{GS} = -10\text{V}$, $I_D = -2.4\text{A}$
		-	-	255		$V_{GS} = -4.5\text{V}$, $I_D = -2\text{A}$
Forward Transconductance ¹	g_{fs}	-	10	-	S	$V_{DS} = -15\text{V}$, $I_D = -2.4\text{A}$
Diode Forward Voltage	V_{SD}	-	-0.83	-	V	$I_S = -1.3\text{A}$, $V_{GS} = 0$
Dynamic ²						
Total Gate Charge	Q_g	-	4.9	-	nC	$V_{DS} = -30\text{V}$, $V_{GS} = -4.5\text{V}$, $I_D = -2.4\text{A}$
Gate-Source Charge	Q_{gs}	-	1.6	-		
Gate-Drain Charge	Q_{gd}	-	2.5	-		
Input Capacitance	C_{iss}	-	385	-	pF	$V_{DS} = -15\text{V}$, $V_{GS} = 0$, $f = 1\text{MHz}$
Output Capacitance	C_{oss}	-	40	-		
Reverse Transfer Capacitance	C_{rss}	-	28	-		
Turn-on Delay Time	$T_{d(on)}$	-	6	-	nS	$V_{DD} = -30\text{V}$, $V_{GEN} = -10\text{V}$, $R_L = 12.5\Omega$, $I_D = -2.4\text{A}$, $R_G = 6\Omega$
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	18	-		
Fall Time	T_f	-	6	-		

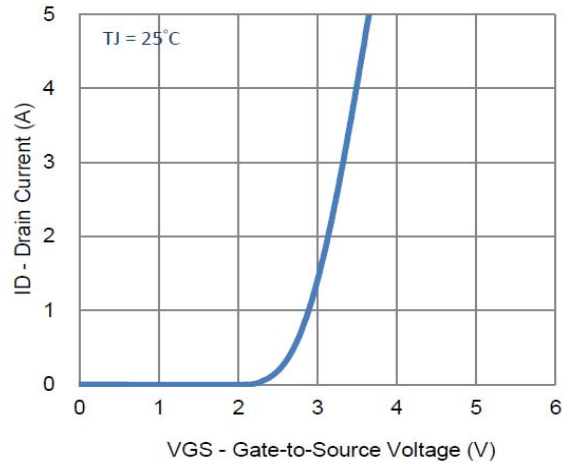
Notes:

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

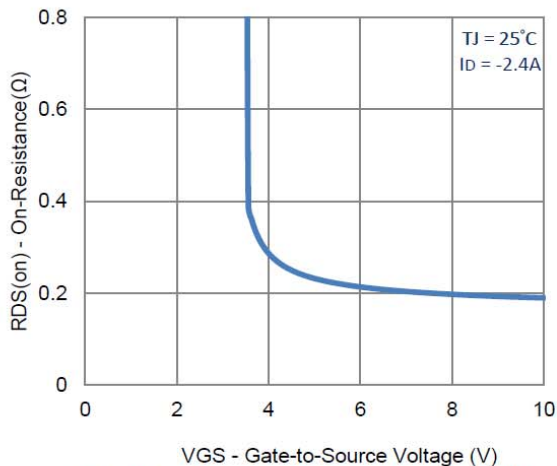
CHARACTERISTIC CURVES



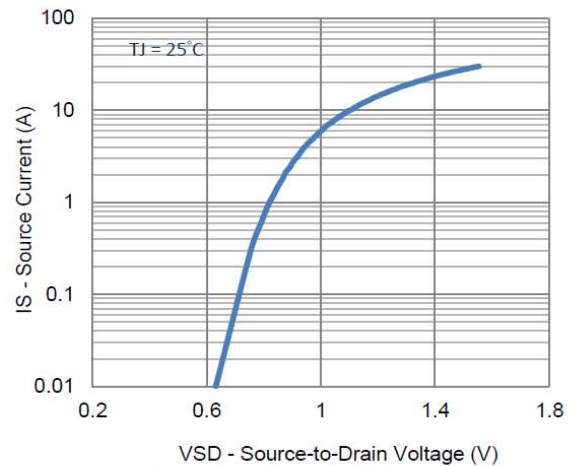
1. On-Resistance vs. Drain Current



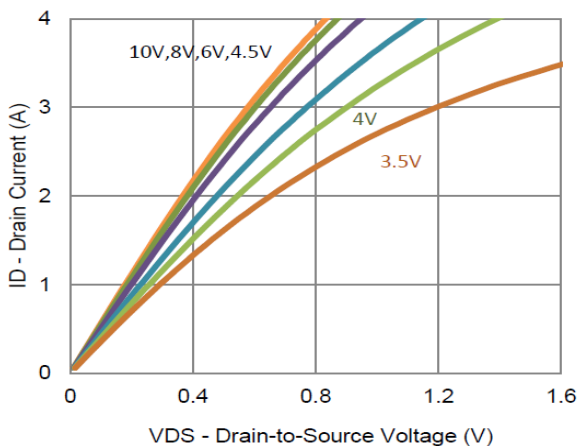
2. Transfer Characteristics



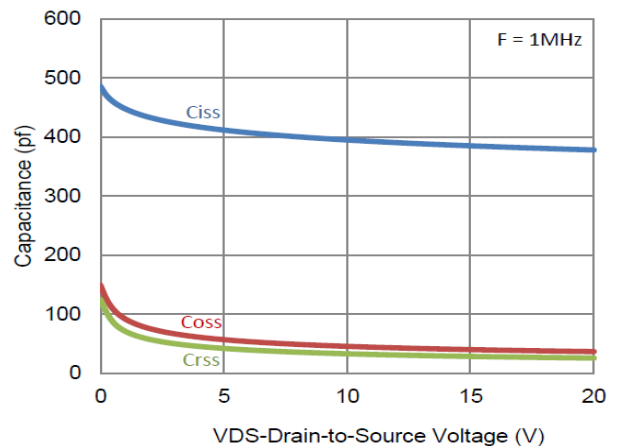
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage



5. Output Characteristics



6. Capacitance

CHARACTERISTIC CURVES

