

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

## FEATURES

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

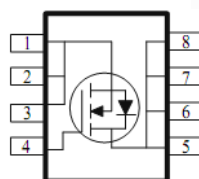
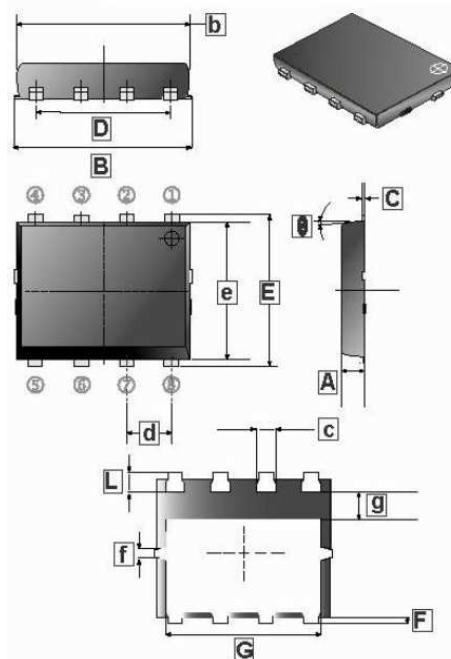
## APPLICATIONS

- White LED boost converters.
- Automotive Systems.
- Industrial DC/DC Conversion Circuits.

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8PP	3K	13 inch

## SOP-8PP



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	0.85	1.00	$\theta$	0°	10°
B	5.40	5.60	b	5.10	5.30
C	0.15	0.25	c	0.30	0.50
D	3.71	3.91	d	1.27BSC	
E	5.95	6.15	e	5.45	5.65
F	0.08	0.24	f	0.20	0.35
G	4.25	4.45	g	1.10	-

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D$	$T_A=25^\circ\text{C}$	35
		$T_A=70^\circ\text{C}$	28
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	100	A
Continuous Source Current (Diode Conduction) <sup>1</sup>	$I_S$	7.3	A
Power Dissipation <sup>1</sup>	$P_D$	$T_A=25^\circ\text{C}$	5
		$T_A=70^\circ\text{C}$	3.2
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
<b>Thermal Resistance Data</b>			
Maximum Junction to Ambient <sup>1</sup>	$t \leq 10$ sec	$R_{\theta JA}$	25
	Steady State		65

Notes:

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

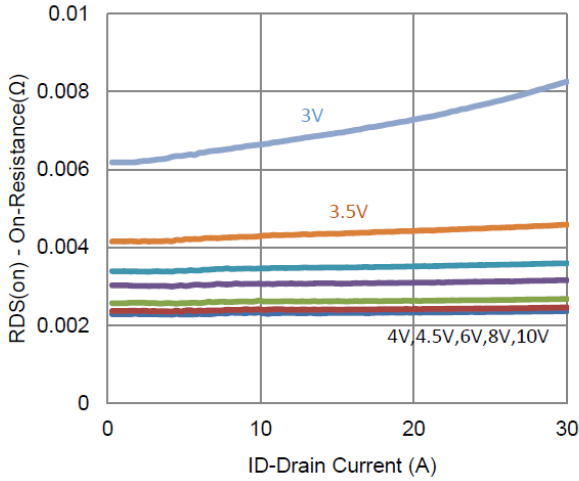
**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test conditions
<b>Static</b>						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Gate-Body Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{DS}=0, V_{GS}= \pm 20\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=24\text{V}, V_{GS}=0$
		-	-	25		$V_{DS}=24\text{V}, V_{GS}=0, T_J=55^\circ\text{C}$
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	50	-	-	A	$V_{DS}=5\text{V}, V_{GS}=10\text{V}$
Drain-Source On-Resistance <sup>1</sup>	$R_{DS(ON)}$	-	-	2.8	m $\Omega$	$V_{GS}=10\text{V}, I_D=20\text{A}$
		-	-	4		$V_{GS}=4.5\text{V}, I_D=16\text{A}$
Forward Transconductance <sup>1</sup>	$g_{FS}$	-	26	-	S	$V_{DS}=15\text{V}, I_D=20\text{A}$
Diode Forward Voltage	$V_{SD}$	-	0.73	-	V	$I_S=3.7\text{A}, V_{GS}=0$
<b>Dynamic <sup>2</sup></b>						
Total Gate Charge	$Q_g$	-	64	-	nC	$I_D=20\text{A}$ $V_{DS}=15\text{V}$ $V_{GS}=4.5\text{V}$
Gate-Source Charge	$Q_{gs}$	-	17	-		
Gate-Drain Charge	$Q_{gd}$	-	32	-		
Turn-On Delay Time	$T_{d(ON)}$	-	17	-	nS	$I_D=20\text{A}, V_{DS}=15\text{V}$ $V_{GEN}=10\text{V}$ $R_L=0.8\Omega, R_{GEN}=6\Omega$
Rise Time	$T_r$	-	28	-		
Turn-Off Delay Time	$T_{d(OFF)}$	-	168	-		
Fall Time	$T_f$	-	65	-		
Input Capacitance	$C_{iss}$	-	13001	-	pF	$V_{DS}=15\text{V}, V_{GS}=0, f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	966	-		
Reverse Transfer Capacitance	$C_{rss}$	-	939	-		

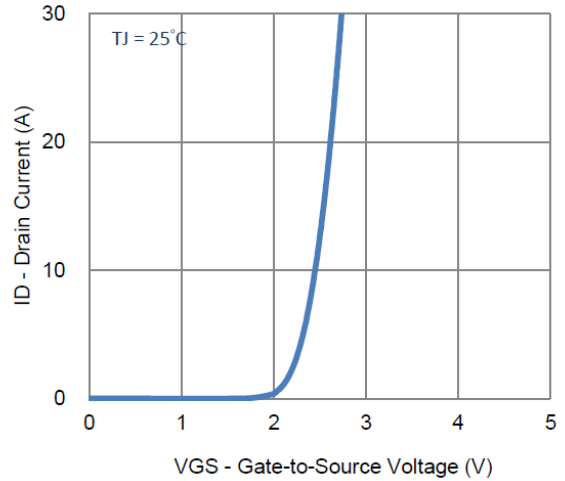
Notes:

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

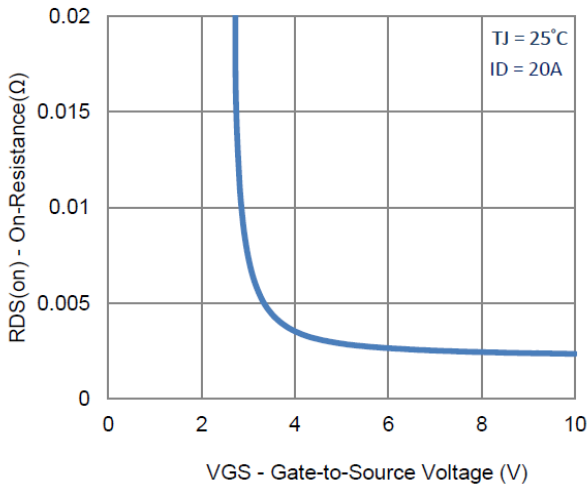
**ELECTRICAL CHARACTERISTICS CURVE**



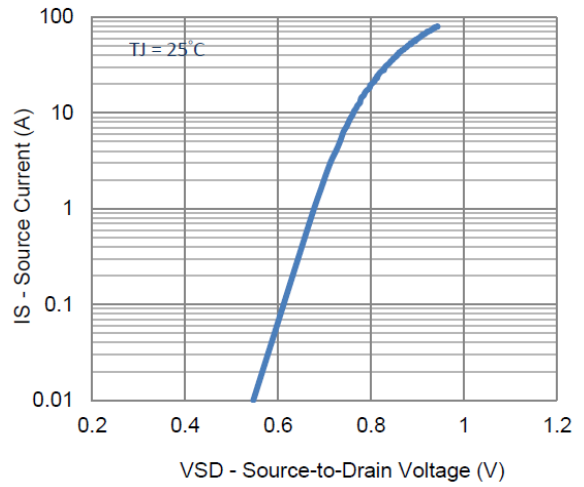
**1. On-Resistance vs. Drain Current**



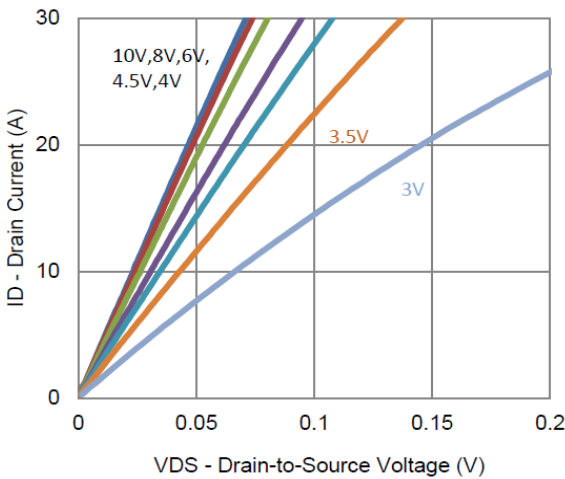
**2. Transfer Characteristics**



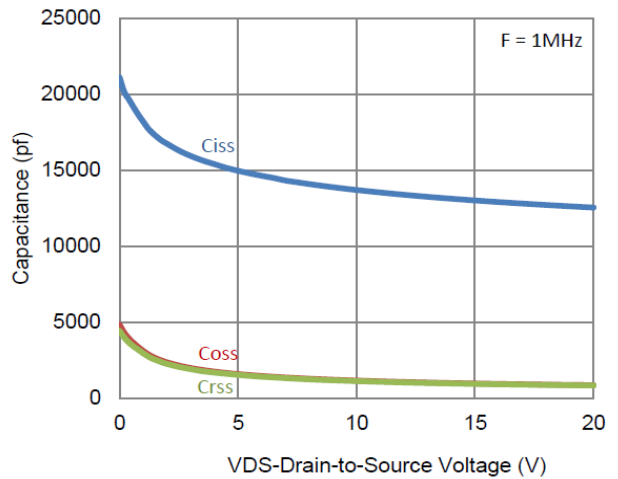
**3. On-Resistance vs. Gate-to-Source Voltage**



**4. Drain-to-Source Forward Voltage**



**5. Output Characteristics**



**6. Capacitance**

**ELECTRICAL CHARACTERISTICS CURVE**

