

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

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

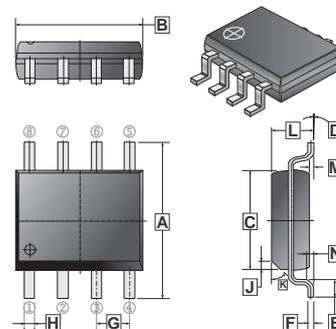
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe SOP-8 saves board space.
- Fast switching speed.
- High performance trench technology.

APPLICATION

DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

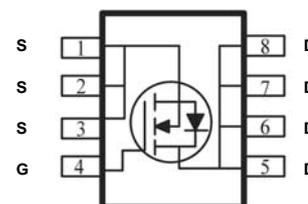
SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375 REF.	
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				

PACKAGE INFORMATION

Package	MPQ	LeaderSize
SOP-8	2.5K	13' inch



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	$T_A = 25^\circ\text{C}$	1.9
		$T_A = 70^\circ\text{C}$	1.5
Pulsed Drain Current ²	I_{DM}	10	A
Continuous Source Current (Diode Conduction) ¹	I_S	3.6	A
Total Power Dissipation ¹	P_D	$T_A = 25^\circ\text{C}$	3.1
		$T_A = 70^\circ\text{C}$	2.2
Operating Junction & 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	40
		Steady State	80

Notes:

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

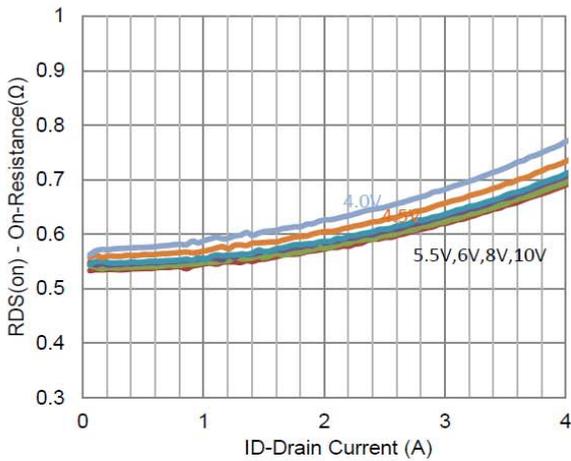
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Gate-Threshold Voltage	V _{GS(th)}	1	-	-	V	V _{DS} =V _{GS} , I _D =250μA
Gate-Body Leakage	I _{GSS}	-	-	±100	nA	V _{DS} =0, V _{GS} =±20V
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1	μA	V _{DS} =120V, V _{GS} =0
		-	-	10		V _{DS} =120V, V _{GS} =0, T _J = 55°C
On-State Drain Current ¹	I _{D(on)}	5	-	-	A	V _{DS} =5V, V _{GS} =10V
Drain-Source On-Resistance ¹	R _{DS(ON)}	-	-	625	mΩ	V _{GS} =10V, I _D =1.9A
		-	-	900		V _{GS} =4.5V, I _D =1.6A
Forward Transconductance ¹	g _{fs}	-	5	-	S	V _{DS} =15V, I _D =1.9A
Diode Forward Voltage	V _{SD}	-	0.8	-	V	I _S =1.8A, V _{GS} =0
Dynamic ²						
Total Gate Charge	Q _g	-	3.5	-	nC	I _D =1.9A V _{DS} =75V V _{GS} =4.5V
Gate-Source Charge	Q _{gs}	-	1.3	-		
Gate-Drain Charge	Q _{gd}	-	1.5	-		
Turn-On Delay Time	T _{d(on)}	-	4.7	-	nS	V _{DD} =75V I _D =1.9A V _{GEN} =10V R _L = 50Ω R _{GEN} =6Ω
Rise Time	T _r	-	5	-		
Turn-Off Delay Time	T _{d(off)}	-	16	-		
Fall Time	T _f	-	5	-		
Input Capacitance	C _{iss}		356		pF	V _{DS} =15V V _{GS} =0V f=1MHz
Output Capacitance	C _{oss}		38			
Reverse Transfer Capacitance	C _{rss}		17			

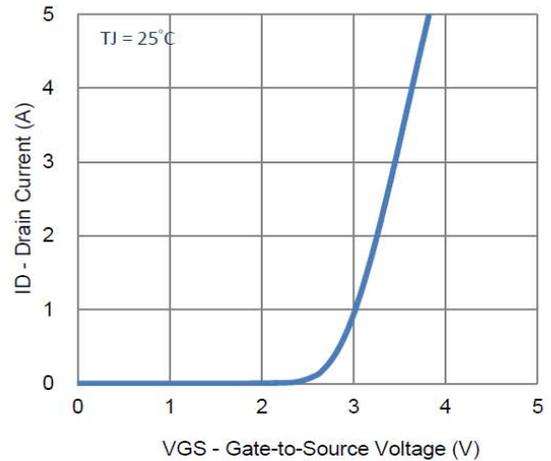
Notes:

- 1 Pulse test : PW ≤ 300μs duty cycle ≤ 2%.
- 2 Guaranteed by design, not subject to production testing.

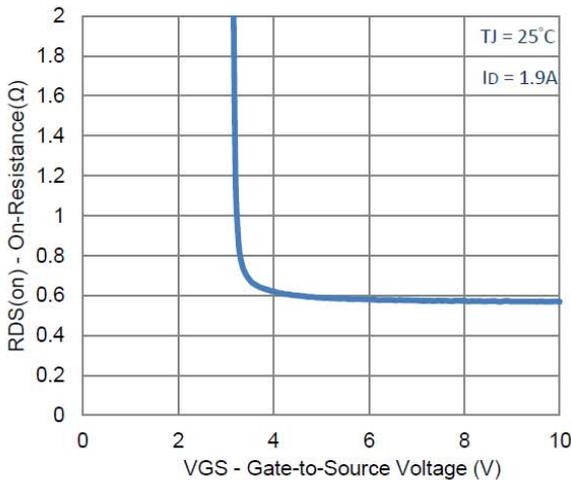
CHARACTERISTIC CURVE



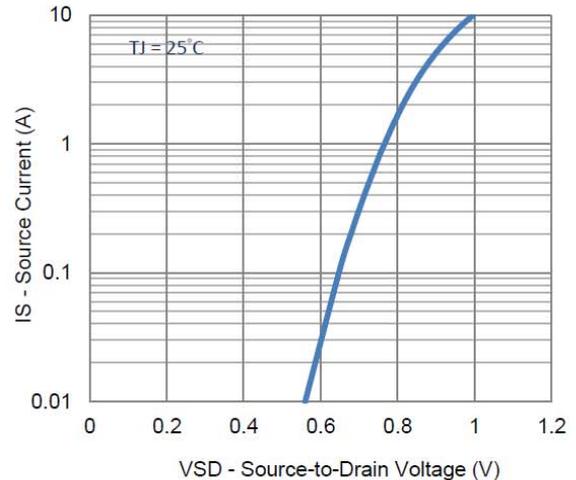
1. On-Resistance vs. Drain Current



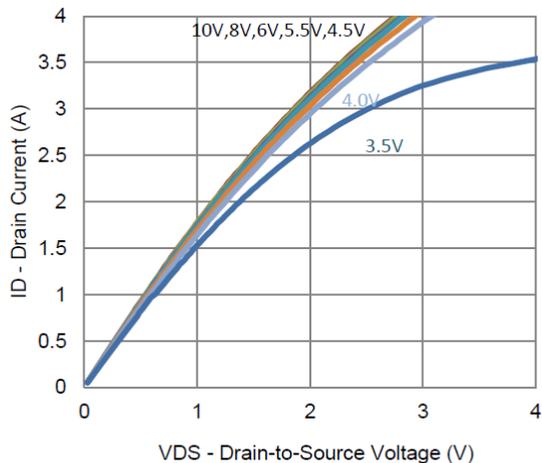
2. Transfer Characteristics



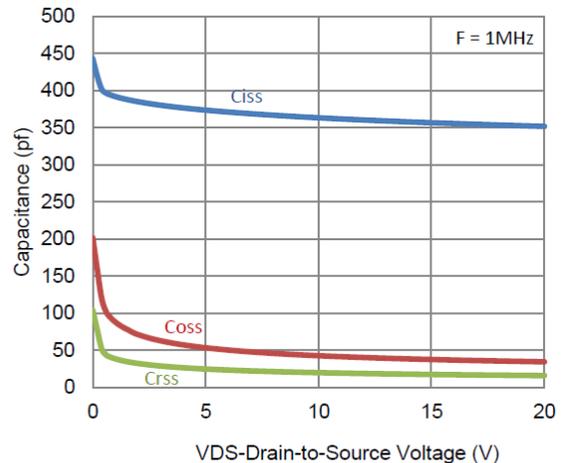
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

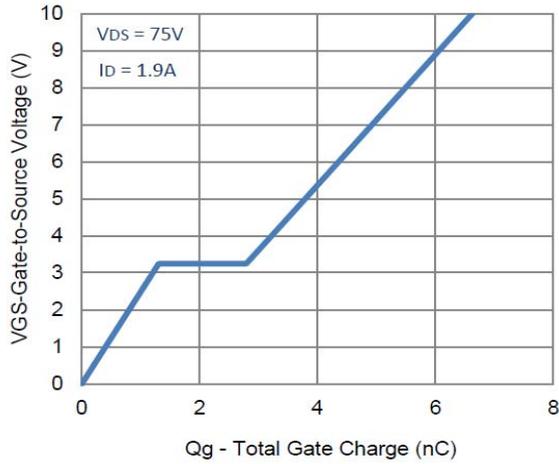


5. Output Characteristics

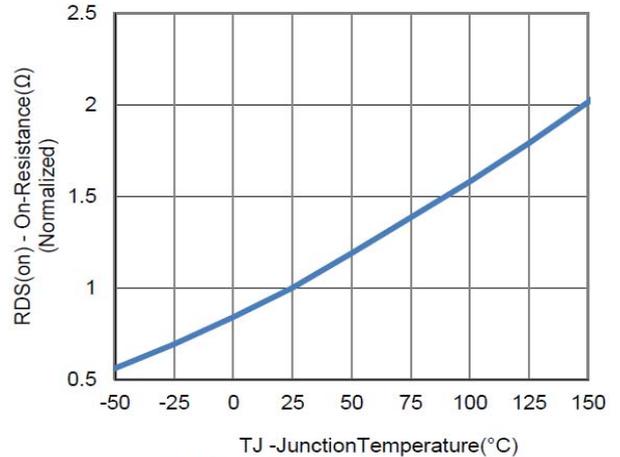


6. Capacitance

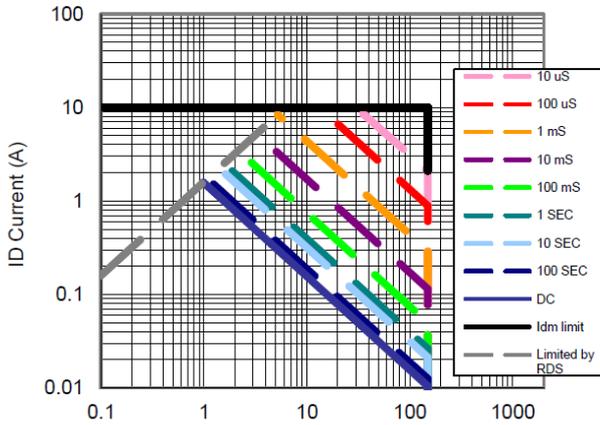
CHARACTERISTIC CURVE



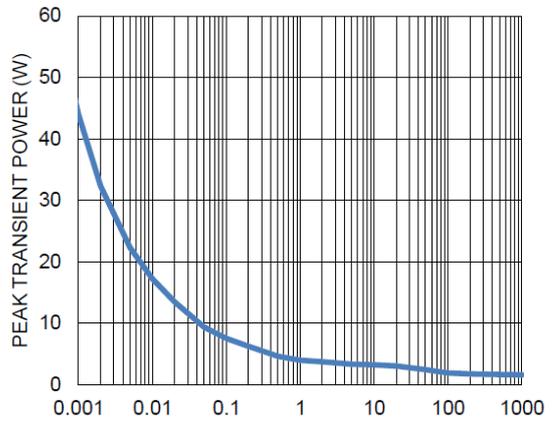
7. Gate Charge



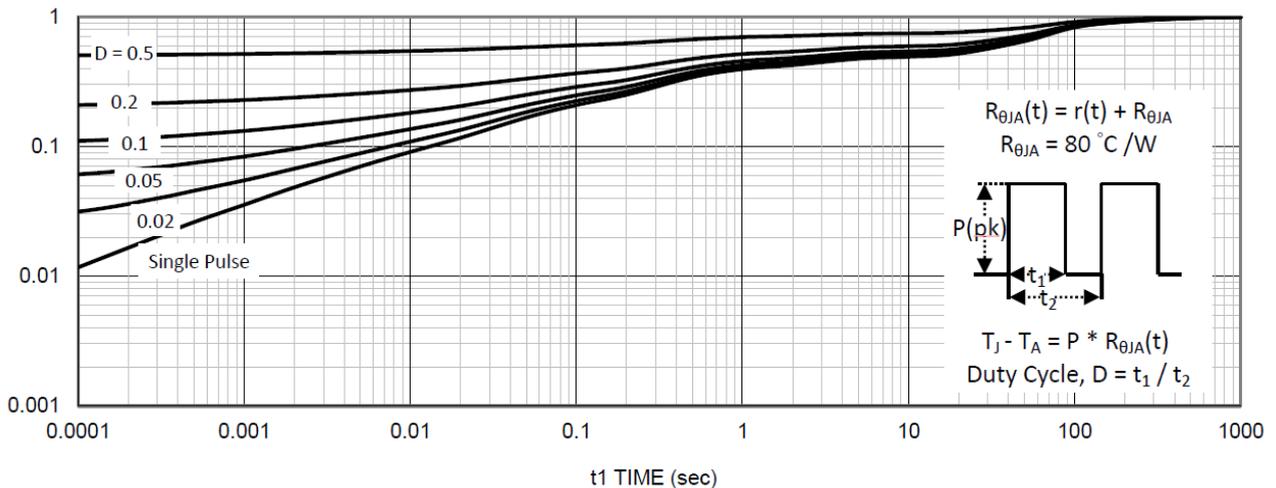
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient