

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

DESCRIPTION

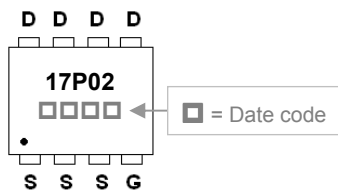
The SPR17P02 is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SPR17P02 meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

- $R_{DS(on)} \leq 11m\Omega @ V_{GS} = -4.5V$
- $R_{DS(on)} \leq 17m\Omega @ V_{GS} = -2.5V$
- Advanced High Cell Density Technology
- Super Low Gate Charge
- Green Device Available

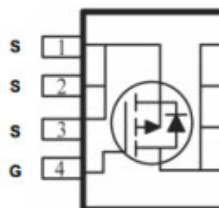
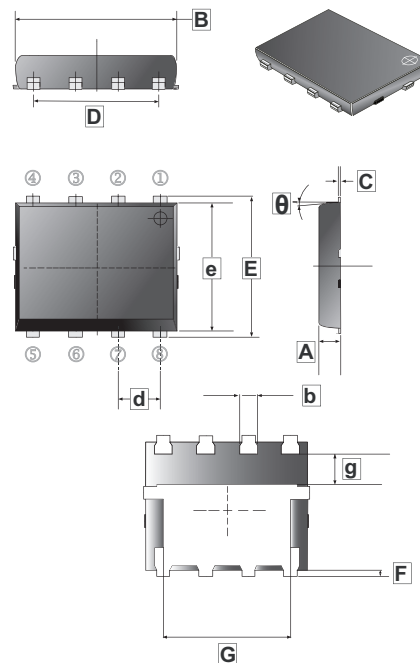
MARKING



PACKAGE INFORMATION

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

PR-8PP



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	0.9	1.1	θ	0°	12°
B	4.9	5.1	b	0.33	0.51
C	0.2	0.3	d	1.27 BSC	
D	3.81	4	e	5.7	5.9
E	5.95	6.2	g	1.1	1.4
F	0.1	0.2			
G	3.81	4			

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ¹ @ $V_{GS}=10V$	I_D	$T_A=25^\circ C$	-17
		$T_A=70^\circ C$	-13.6
Pulsed Drain Current ³	I_{DM}	-60	A
Total Power Dissipation	P_D	$T_A=25^\circ C$	5
		$T_A=70^\circ C$	3.2
Operating Junction & Storage Temperature	T_J, T_{STG}	-55~150	$^\circ C$
Thermal Resistance Rating			
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	$t \leq 10s, 25$	$^\circ C / W$
		Steady State, 62	
Thermal Resistance Junction-Ambient ²		125	
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	3.1	

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

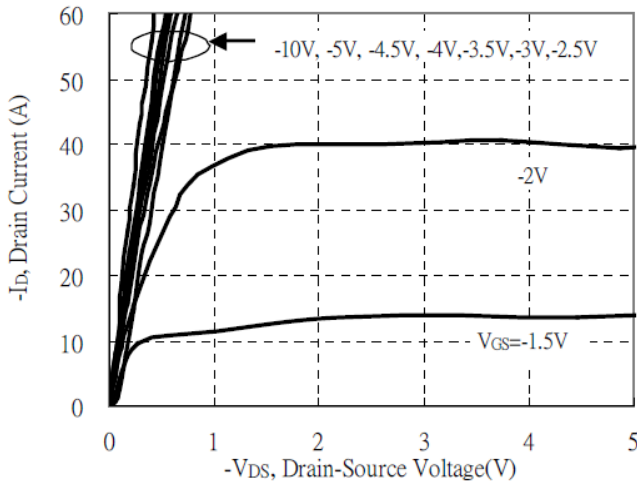
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-20	-	-	V	$V_{GS}=0, I_D=-250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	-0.45	-	-1.5	V	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 12\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	-1	mA	$V_{DS}=-16\text{V}, V_{GS}=0, T_J=25^\circ\text{C}$
		-	-	-10		$V_{DS}=-16\text{V}, V_{GS}=0, T_J=125^\circ\text{C}$
Static Drain-Source On-Resistance ⁴	$R_{DS(ON)}$	-	8.8	11	m Ω	$V_{GS}=-4.5\text{V}, I_D=-14\text{A}$
		-	12.8	17		$V_{GS}=-2.5\text{V}, I_D=-10\text{A}$
Total Gate Charge	Q_g	-	35	-	nC	$I_D=-15\text{A}$ $V_{DS}=-10\text{V}$ $V_{GS}=-4.5\text{V}$
Gate-Source Charge	Q_{gs}	-	8.3	-		
Gate-Drain Change	Q_{gd}	-	11	-		
Turn-on Delay Time	$T_{d(on)}$	-	42	-	nS	$V_{DD}=-10\text{V}$ $I_D=-1\text{A}$ $V_{GS}=-4.5\text{V}$ $R_G=6\Omega$
Rise Time	T_r	-	23	-		
Turn-off Delay Time	$T_{d(off)}$	-	136	-		
Fall Time	T_f	-	74	-		
Input Capacitance	C_{iss}	-	4107	-	pF	$V_{GS}=0$ $V_{DS}=-10\text{V}$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	415	-		
Reverse Transfer Capacitance	C_{rss}	-	368	-		
Source-Drain Diode						
Continuous Source Current ¹	I_S	-	-	-11	A	
Pulsed Source Current ³	I_{SM}	-	-	-44	A	
Diode Forward Voltage ⁴	V_{SD}	-	-	-1	V	$I_S=-1.5\text{A}, V_{GS}=0\text{V}, T_J=25^\circ\text{C}$
Reverse Recovery Time	t_{rr}	-	50	-	nS	$I_F=-2.3\text{A}, dI/dt=100\text{A}/\mu\text{s},$ $T_J=25^\circ\text{C}$
Reverse Recovery Charge	Q_{rr}	-	36	-	nC	

Notes:

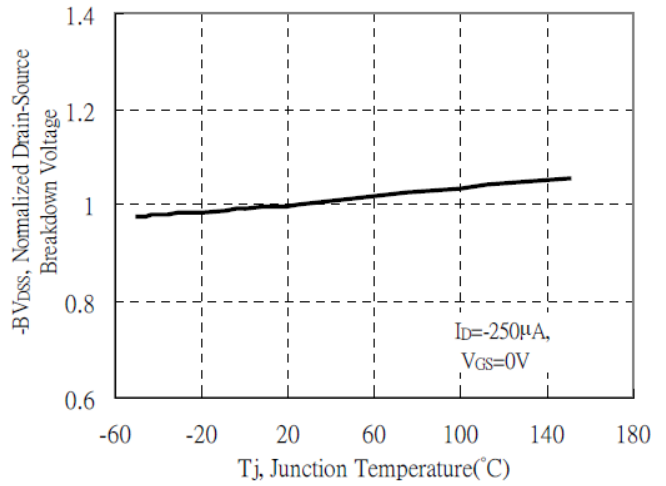
1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper
2. When mounted on Min. copper pad.
3. The power dissipation is limited by 150°C junction temperature
4. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

CHARACTERISTIC CURVES

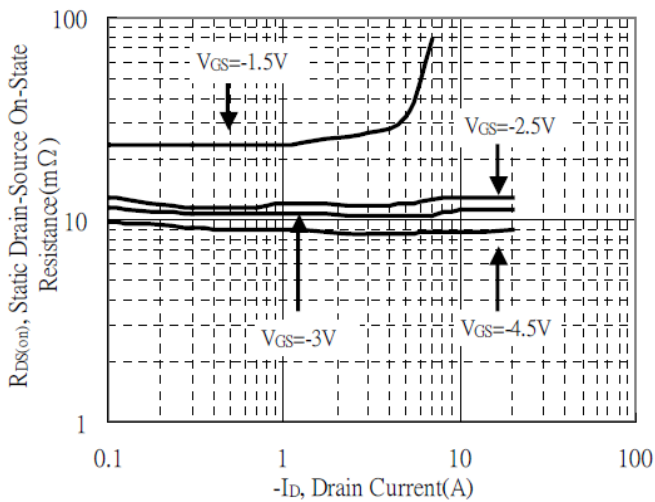
Typical Output Characteristics



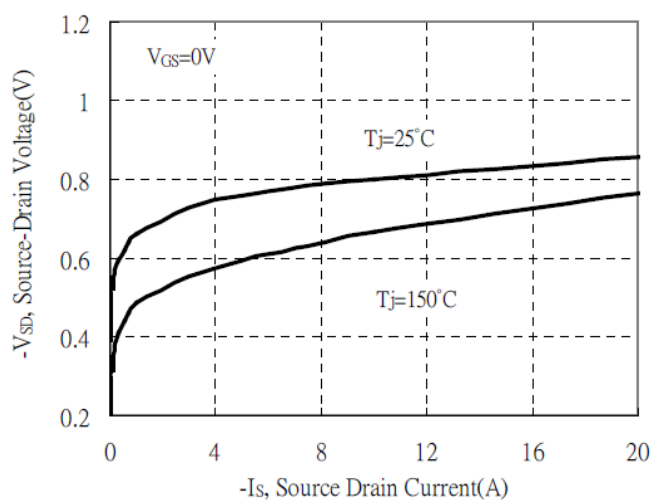
Normalized Brekdown Voltage vs Ambient Temperature



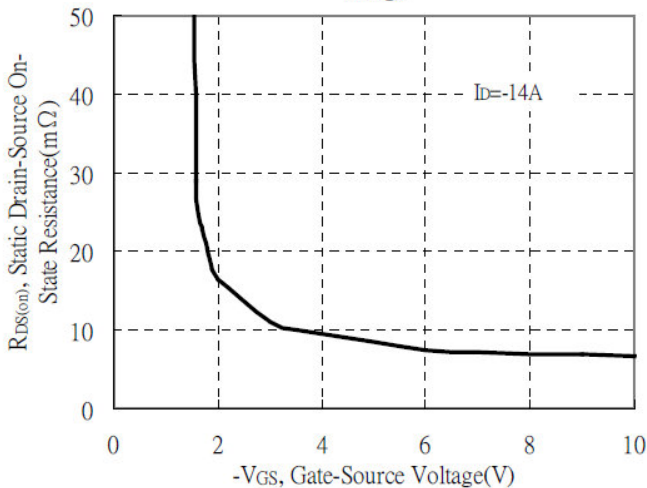
Static Drain-Source On-State resistance vs Drain Current



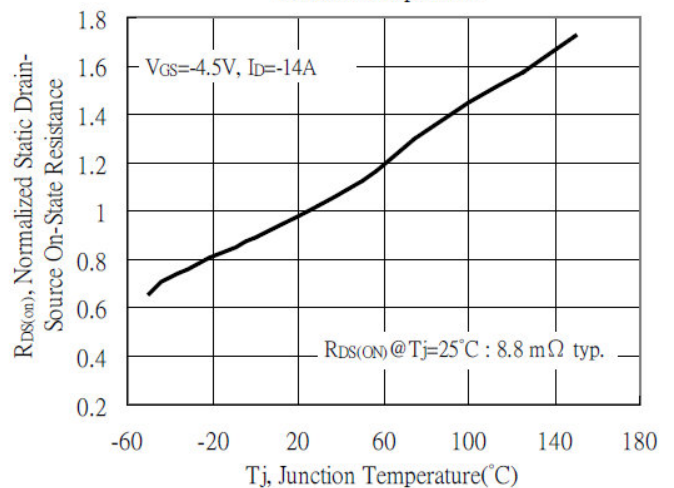
Source Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

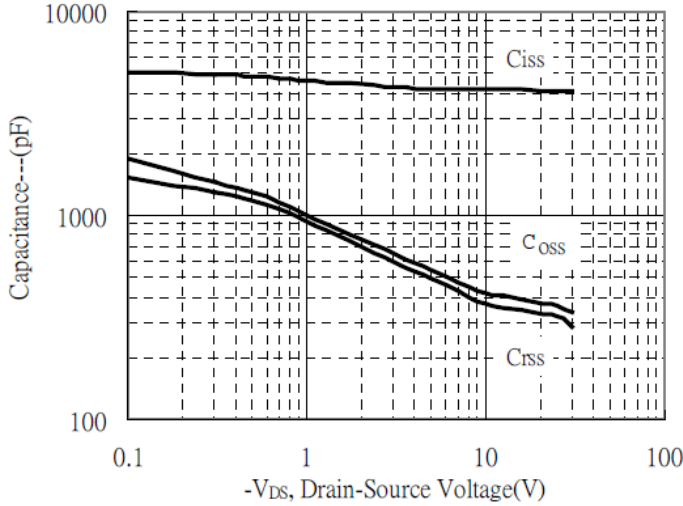


Normalized Drain-Source On-State Resistance vs Junction Temperature

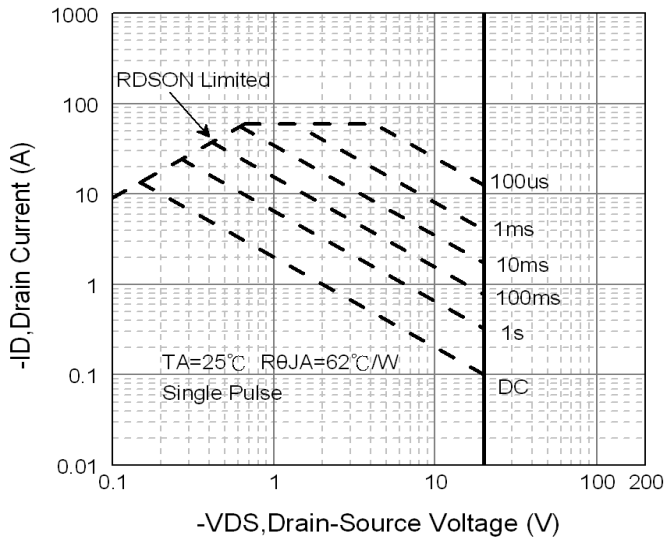
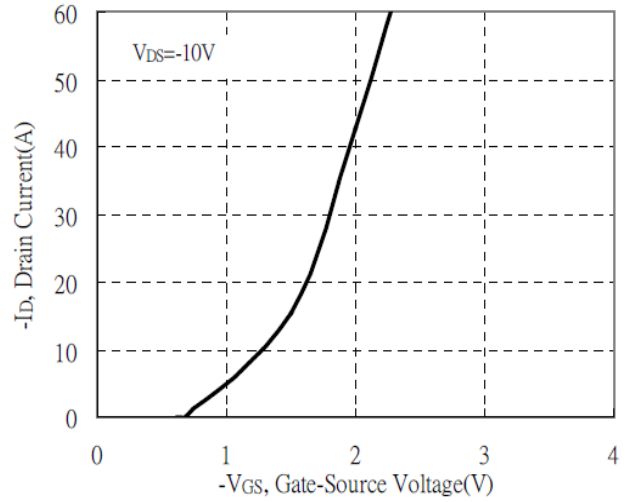


CHARACTERISTIC CURVES

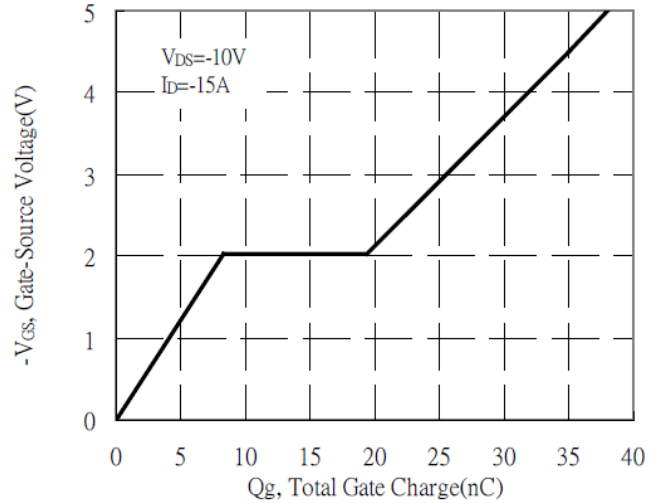
Capacitance vs Drain-to-Source Voltage



Typical Transfer Characteristics



Gate Charge Characteristics



Transient Thermal Response Curves

