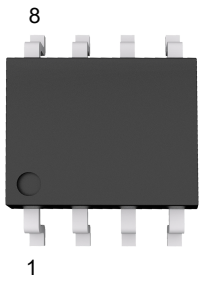
PJM08C60PA
N and P-Channel Complementary Power MOSFET

Features

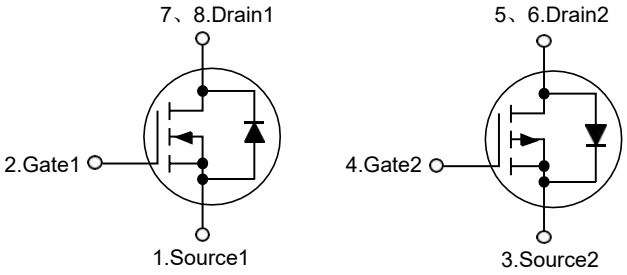
- **N-Channel**
  V_{DS}=60V,I_D=8A
  $R_{DS(on)}$<50mΩ@V_{GS}=10V
- **P-Channel**
  V_{DS}=-60V,I_D=-8A
  $R_{DS(on)}$<70mΩ@V_{GS}=-10V
- Low On-Resistance
- Advanced Trench Technology
- Fast Switching Speed

SOP-8



Marking Code:06C60

Schematic Diagram



N-Channel **P-Channel**

Applications

- High Power and Current Handing Capability
- Lead Free Product is Acquired
- Surface Mount Package

Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	60	-60	V
Gate-Source Voltage	V_{GS}	±20		V
Drain Current-Continuous	I_D	8	-8	A
Drain Current-Pulsed Note1	I_{DM}	40	-30	A
Maximum Power Dissipation	P_D	2		W
Single pulse avalanche energy Note4	E_{AS}	30	30	mJ
Junction Temperature	T_J	150		°C
Storage Temperature Range	T_{STG}	-55 to +150		°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient Note2	$R_{\theta JA}$	62.5	°C/W

N-Channel

Electrical Characteristics

(T_J=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	1.5	2.5	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=10V,I_D=8A	--	22	40	mΩ
		V_{GS}=4.5V,I_D=8A	--	25	50	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=5V,I_D=2A	--	8	--	S
Dynamic Characteristics						
++Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f=1MHz	--	865	--	pF
Output Capacitance	C_{oss}		--	85	--	pF
Reverse Transfer Capacitance	C_{rss}		--	75	--	pF
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,f =1MHz	--	1.1	--	Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=30V,R_L=2.5Ω V_{GS}=10V,R_{GEN}=3Ω	--	7	--	nS
Turn-on Rise Time	t_r		--	20	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	16	--	nS
Turn-off Fall Time	t_f		--	23	--	nS
Total Gate Charge	Q_g	V_{DS}=30V,I_D=6A, V_{GS}=10V	--	25	--	nC
Gate-Source Charge	Q_{gs}		--	3	--	nC
Gate-Drain Charge	Q_{gd}		--	6.4	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	V_{SD}	V_{GS}=0V,I_S=8A	--	--	1.2	V
Diode Forward Current	I_S		--	--	6	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. EAS Condition: T_J=25℃, V_{DD}=30V,V_G=10V,L=0.5mH,R_G=25Ω,I_{AS}=11A.

P-Channel

Electrical Characteristics

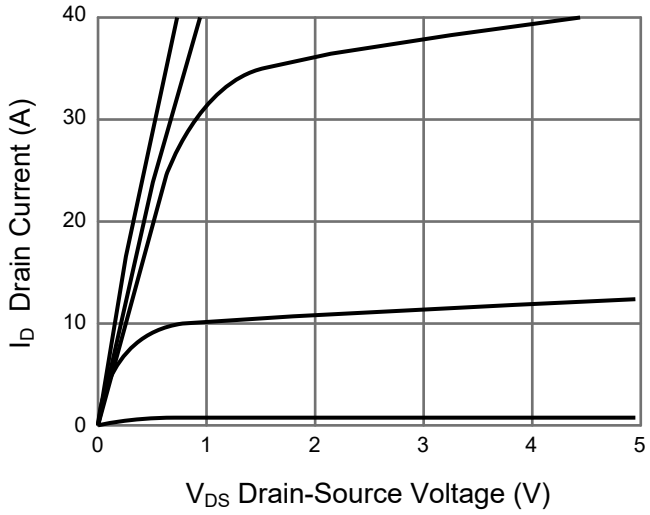
(T_J=25℃ unless otherwise specified)

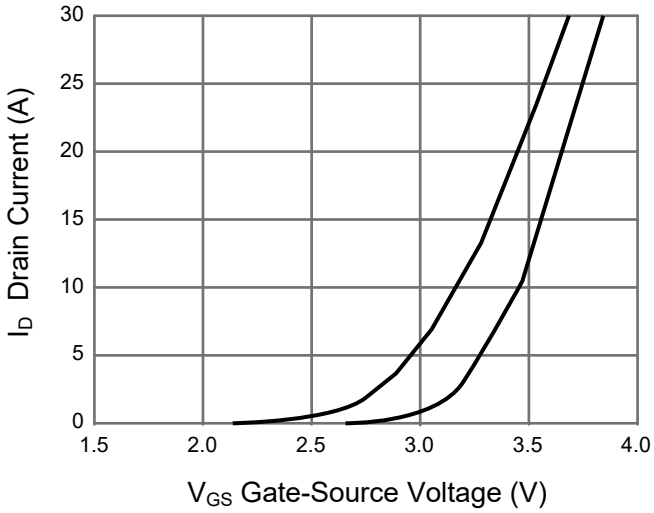
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	60	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	V_{DS}=-60V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note3	$-V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	1	1.6	2.5	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=-10V,I_D=-8A	--	52	70	mΩ
		V_{GS}=-4.5V,I_D=-8A	--	61	90	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=-5V,I_D=-2A	--	8	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-20V,V_{GS}=0V,f=1MHz	--	1100	--	pF
Output Capacitance	C_{oss}		--	77	--	pF
Reverse Transfer Capacitance	C_{rss}		--	66	--	pF
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,f =1MHz	--	3.6	--	Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-30V, R_L=3.75Ω V_{GS}=-10V, R_{GEN}=3Ω	--	8	--	nS
Turn-on Rise Time	t_r		--	4	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	32	--	nS
Turn-off Fall Time	t_f		--	7	--	nS
Total Gate Charge	Q_g	V_{DS}=-30V, I_D=-8A, V_{GS}=-10V	--	23.4	--	nC
Gate-Source Charge	Q_{gs}		--	4.1	--	nC
Gate-Drain Charge	Q_{gd}		--	4.8	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	$-V_{SD}$	V_{GS}=0V,I_S=-8A	--	--	1.2	V
Diode Forward Current	$-I_S$		--	--	6	A

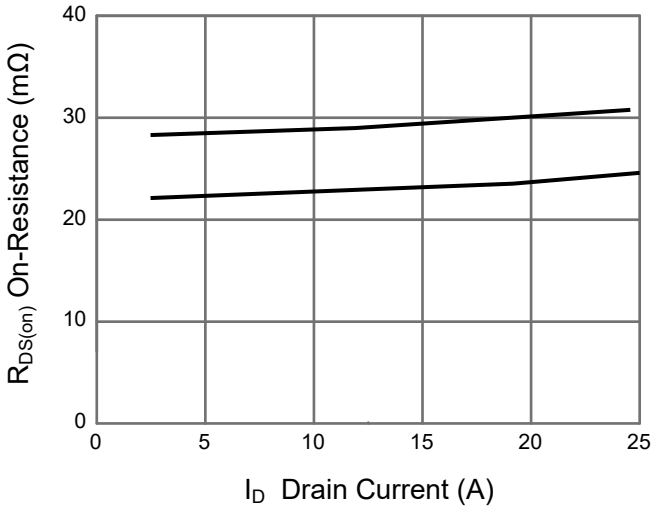
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. EAS Condition: T_J=25℃, V_{DD}=-30V,V_G=-10V,L=0.5mH,R_G=25Ω,I_{AS}=-11A.

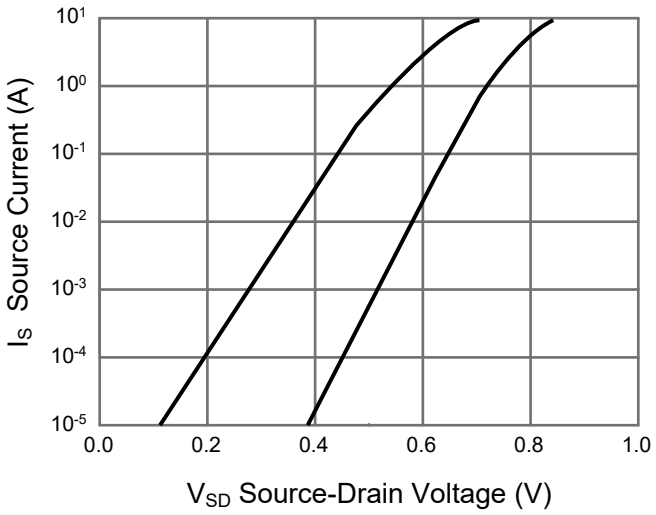
N-Channel

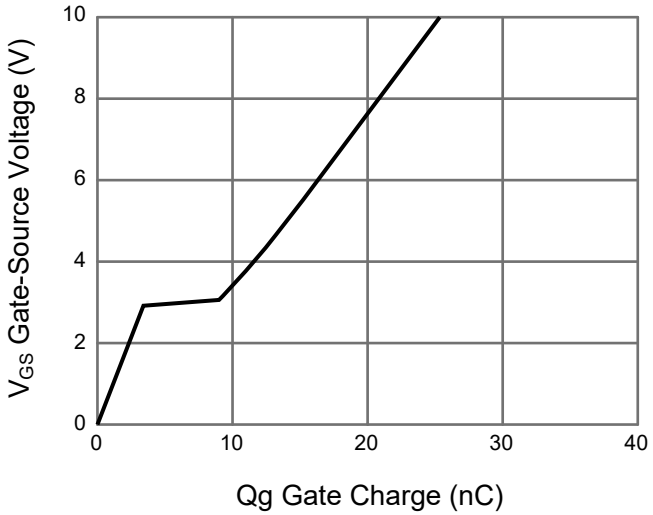
Typical Characteristics Curves

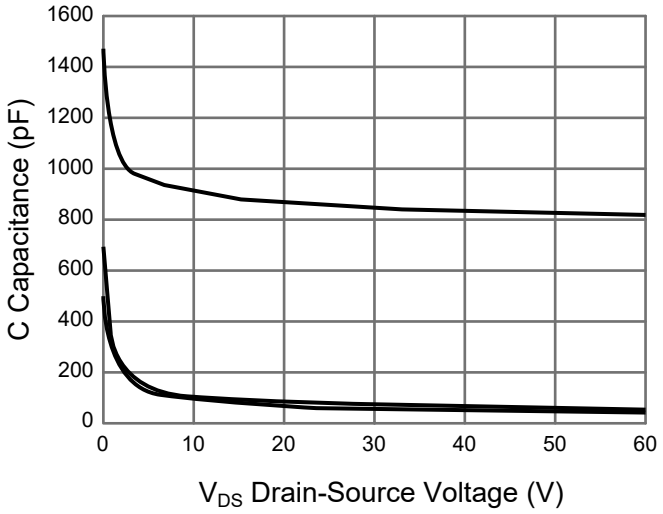


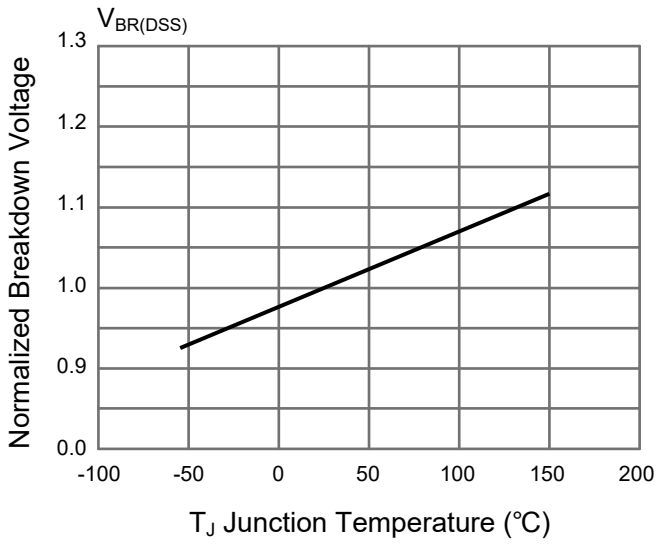


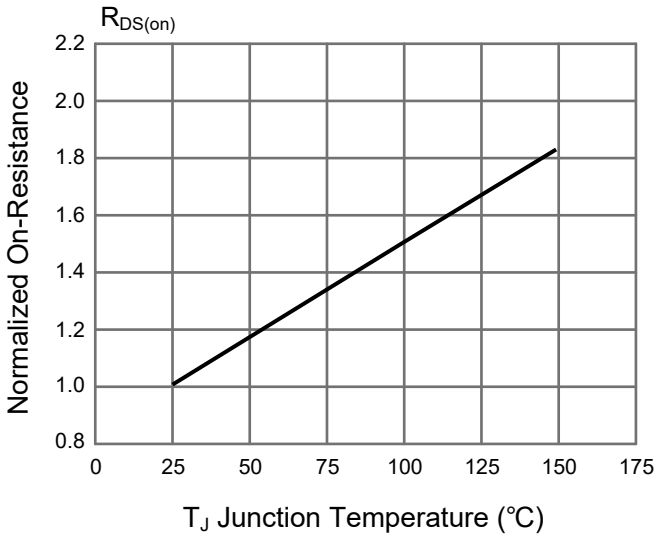


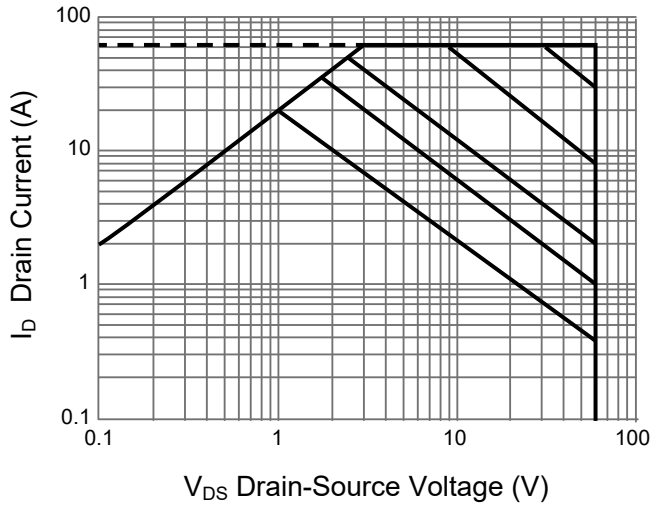






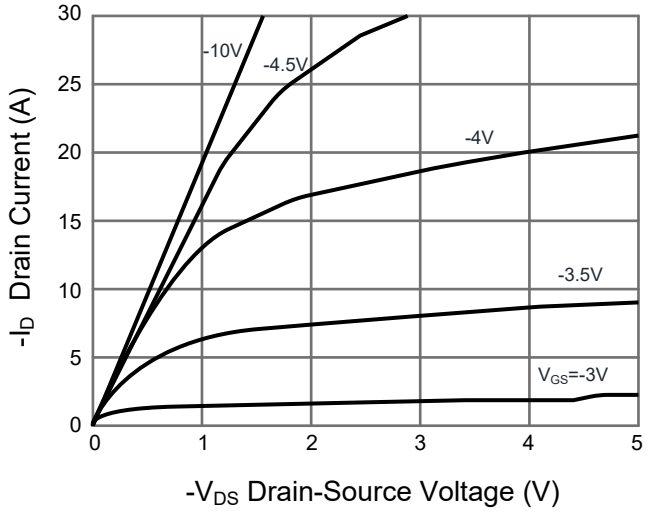

$V_{BR(DSS)}$
Normalized Breakdown Voltage
1.3
1.2
1.1
1.0
0.9
0.0
-100
-50
0
50
100
150
200
T_J Junction Temperature (℃)

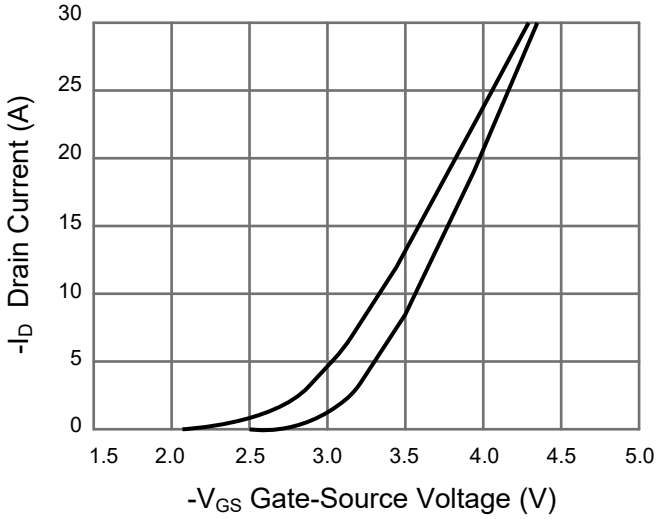

$R_{DS(on)}$
Normalized On-Resistance
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0
25
50
75
100
125
150
175
T_J Junction Temperature (℃)

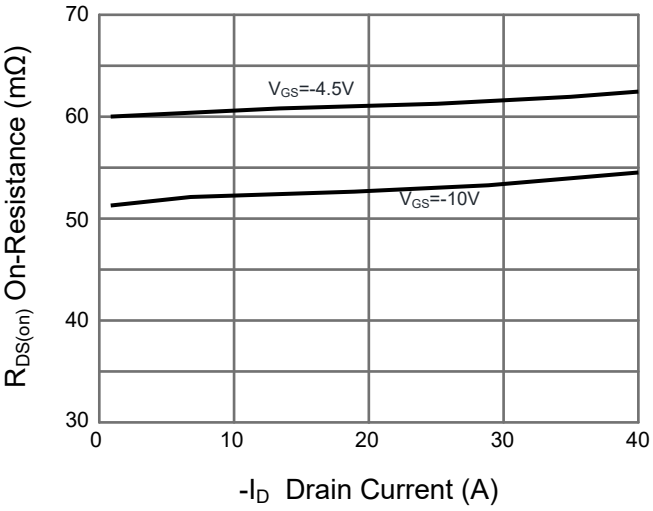

I_D Drain Current (A)
100
10
1
0.1
0.1
1
10
100
V_{DS} Drain-Source Voltage (V)

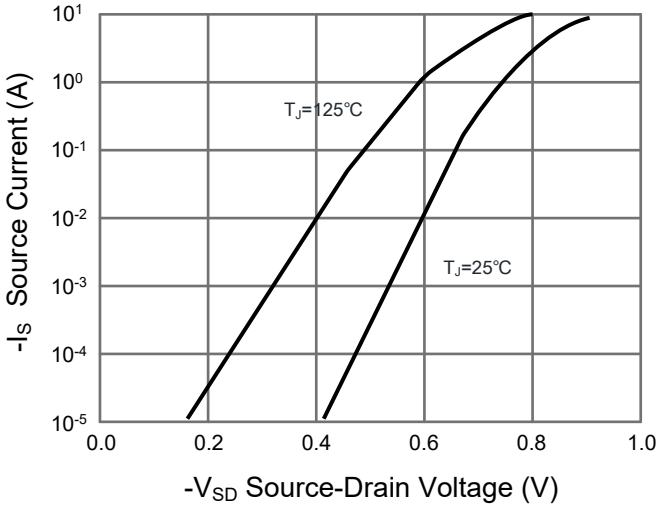
P-Channel

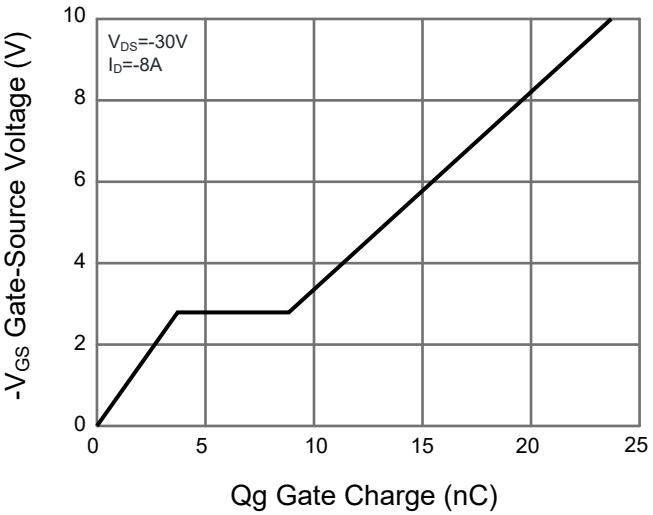
Typical Characteristics Curves

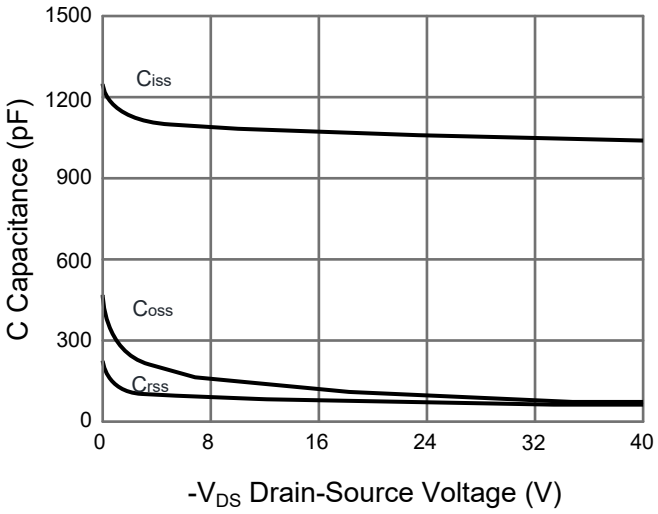


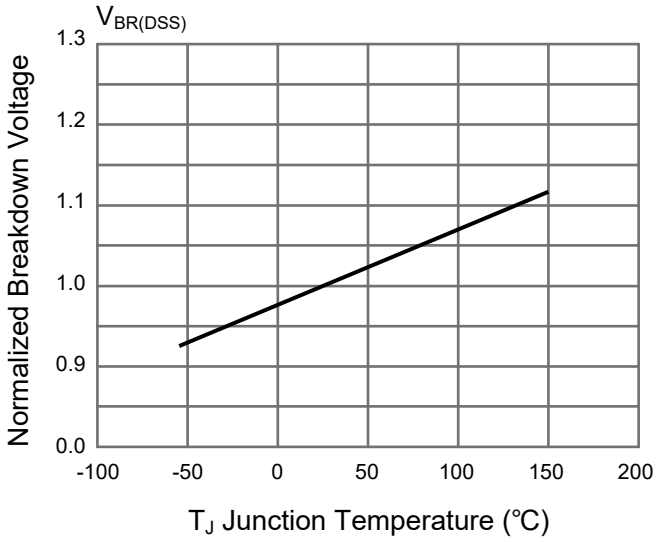


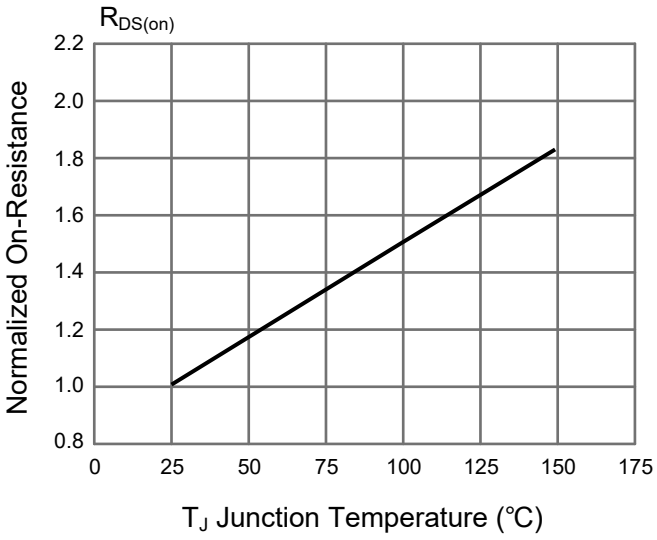


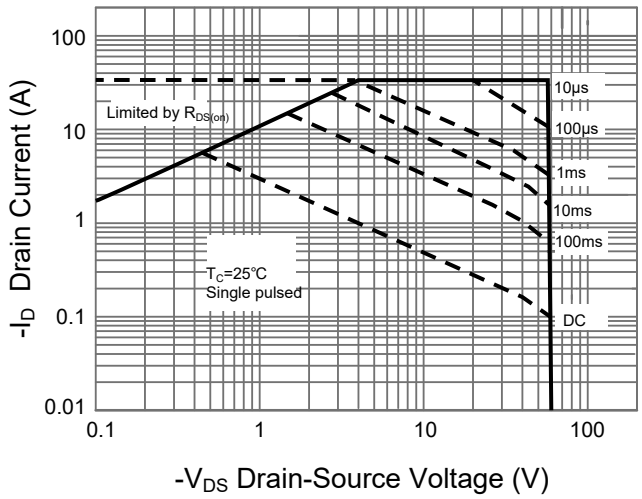







$V_{BR(DSS)}$
Normalized Breakdown Voltage
1.3
1.2
1.1
1.0
0.9
0.0
-100
-50
0
50
100
150
200
T_J Junction Temperature (℃)

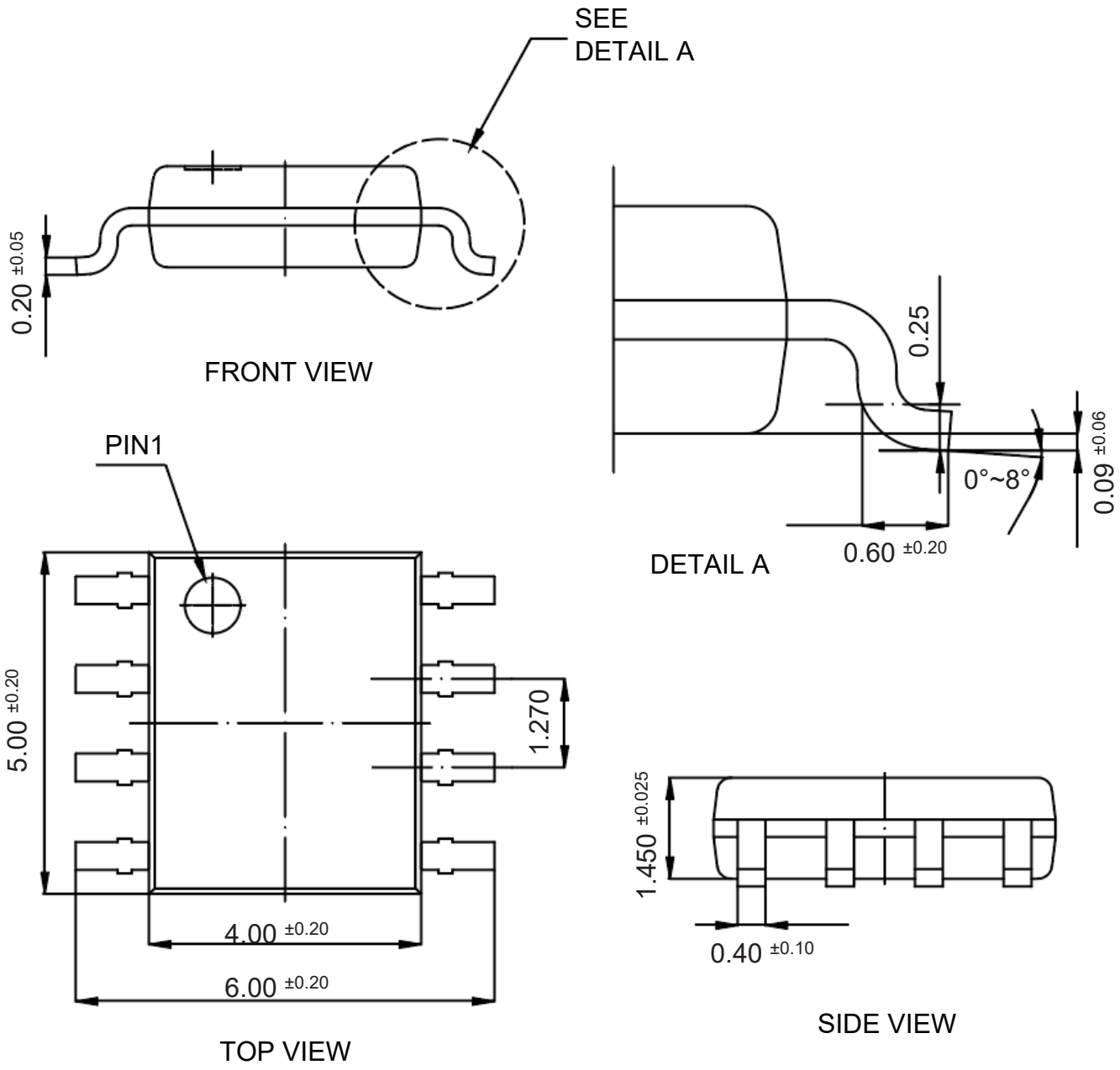

$R_{DS(on)}$
Normalized On-Resistance
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0
25
50
75
100
125
150
175
T_J Junction Temperature (℃)


$-I_D$ Drain Current (A)
100
10
1
0.1
0.01
0.1
1
10
100
Limited by $R_{DS(on)}$
10μs
100μs
1ms
10ms
100ms
DC
T_C=25℃
Single pulsed
$-V_{DS}$ Drain-Source Voltage (V)

Package Outline

SOP-8

Dimensions in mm



Ordering Information

Device	Package	Shipping
PJM08C60PA	SOP-8	4,000PCS/Reel&13inches

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