

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	22mΩ@-4.5V	6A
	30mΩ@-2.5V	
-20V	50mΩ@4.5V	-5A
	70mΩ@2.5V	

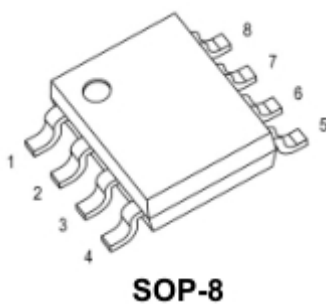
Feature

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Fast Switching Speed

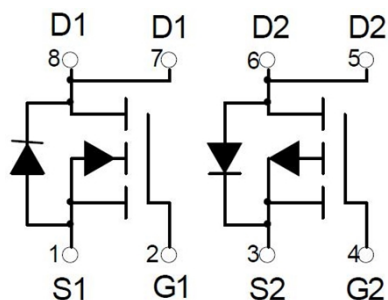
Applications

- Motor Control
- Power Management Functions
- DC-DC Converters
- Backlighting

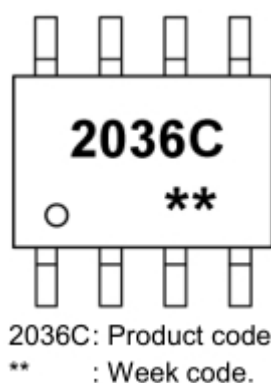
Package



Circuit diagram



Marking



Maximum Ratings-Total Device

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

Maximum Ratings - N-Channel Q1

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_{D}	6	A

Maximum Ratings - P-Channel Q1

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	-5	A

Thermal Characteristics

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient	R _{θJA}	277	°C/W

Electrical characteristics - N-Channel Q1

($T_A=25^{\circ}\text{C}$, unless otherwise noted)

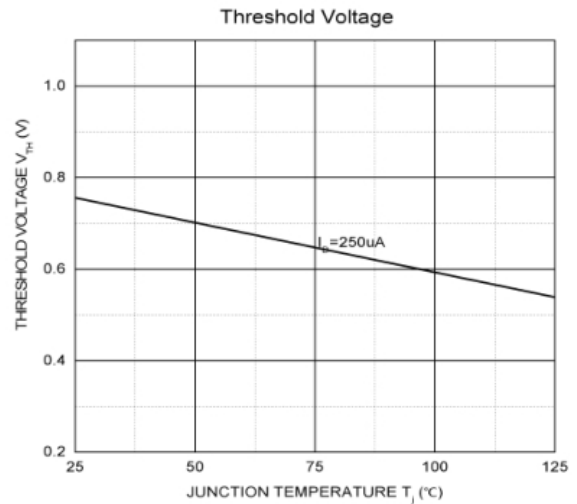
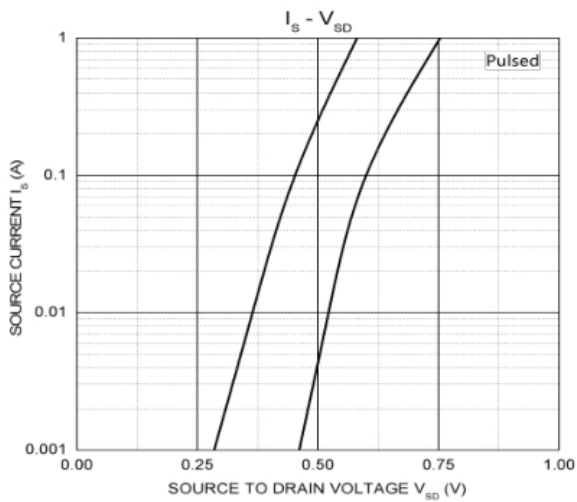
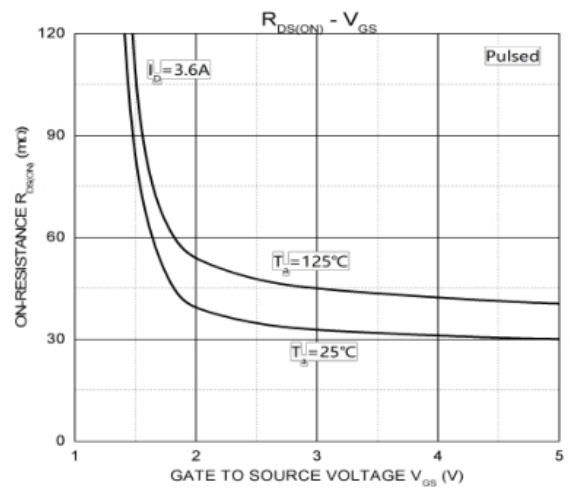
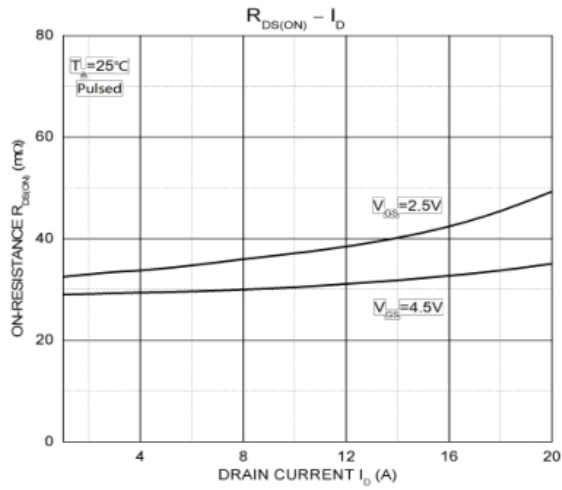
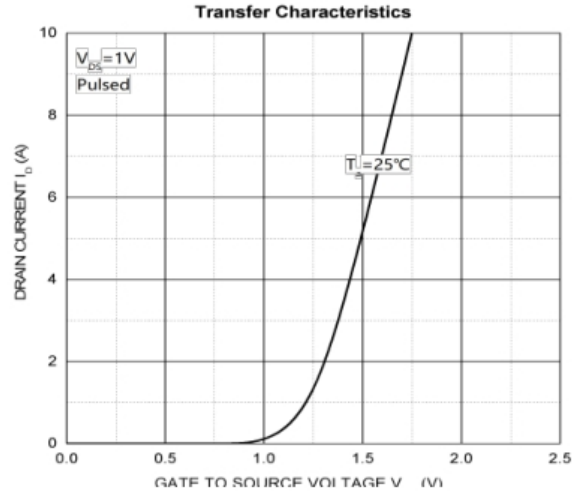
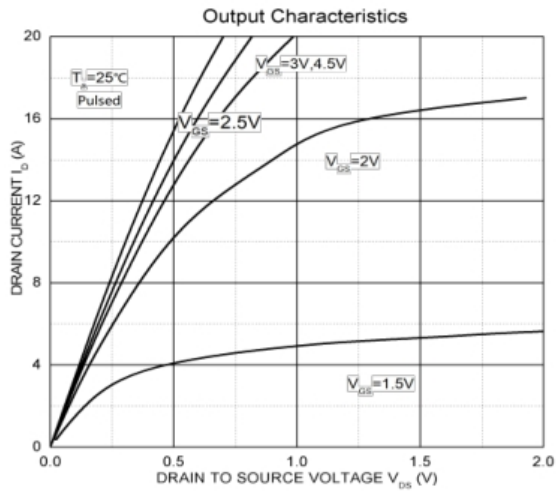
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} = 0V			1	uA
Gate-body leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			±0.1	uA
Gate threshold voltage ⁽¹⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =4A		22	30	mΩ
		V _{GS} =2.5V, I _D =3A		30	40	
Dynamic Characteristics						
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =4A		11		nC
Gate-source charge	Q _{gs}			2.3		
Gate-drain charge	Q _{gd}			2.5		
Input capacitance	C _{iss}	V _{DS} =8V, V _{GS} =0V, f=1MHz		800		pF
Output capacitance	C _{oss}			155		
Reverse transfer capacitance	C _{rss}			125		
Switching Characteristics						
Turn-on Delay Time	T _{d(on)}	V _{DD} =10V, V _{GS} =4V, I _D =1A, R _{GEN} =10Ω		18		nS
Turn-on Rise Time	T _r			5		
Turn-Off Delay Time	T _{d(off)}			43		
Turn-Off Fall Time	t _f			20		
Source-Drain Diode Characteristics						
Diode forward voltage	V _{SD}	I _S =1A, V _{GS} = 0V			1.3	V

Electrical characteristics - P-Channel Q2

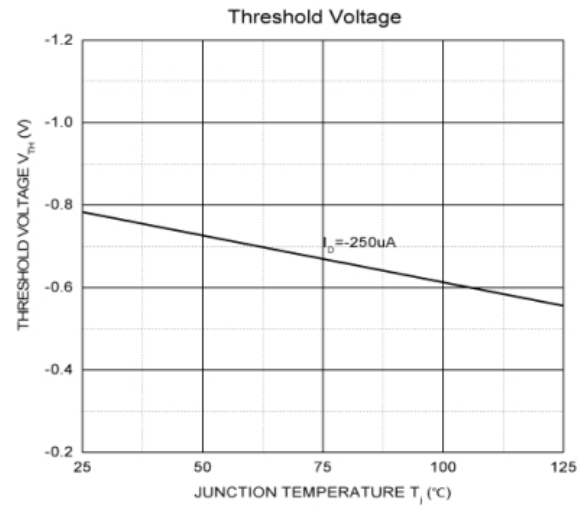
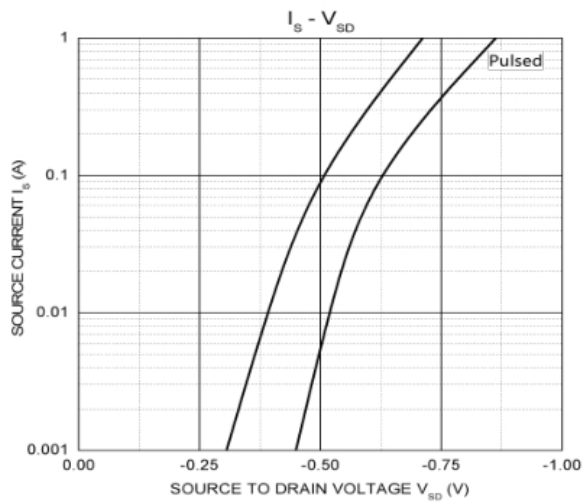
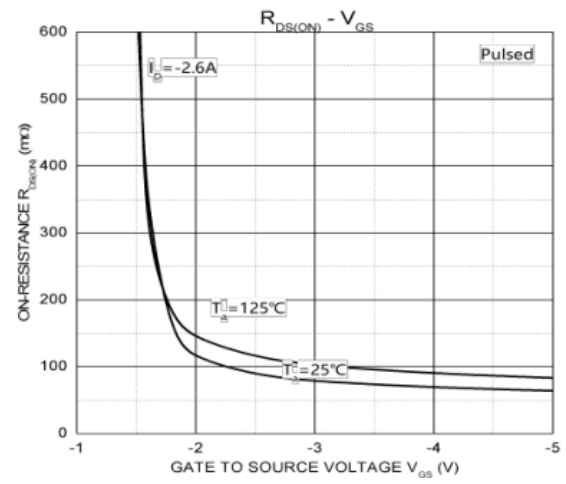
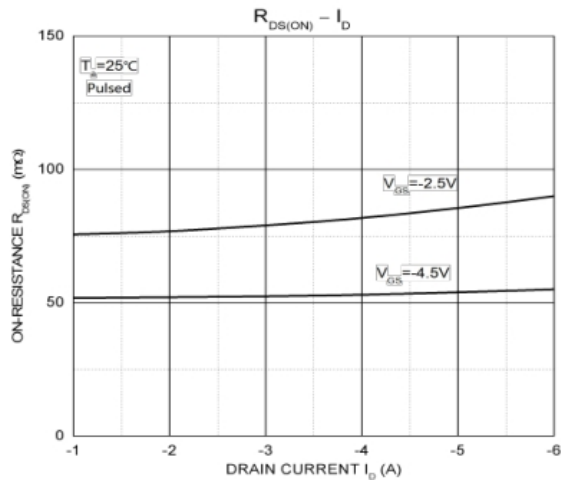
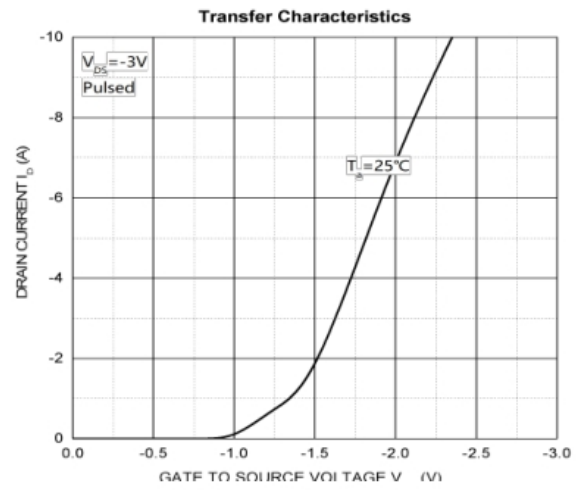
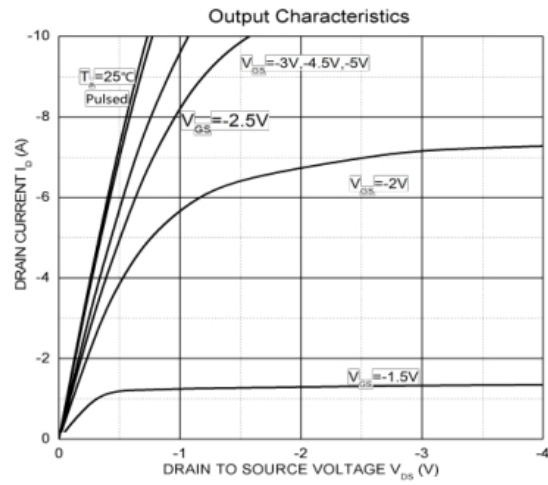
(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	μA
Gate threshold voltage ⁽¹⁾	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.5	-0.7	-1	V
Drain-source on-resistance ⁽¹⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3A		50	60	Ω
		V _{GS} = -2.5V, I _D = -1A		70	90	
Dynamic Characteristics ²⁾						
Input capacitance	C _{iSS}	V _{DS} = -10V, V _{GS} =0V, f=1MHz		405		pF
Output capacitance	C _{oSS}			75		
Reverse transfer capacitance	C _{rSS}			55		
Gate resistance	R _g	f =1MHz		6		Ω
Total gate charge	Q _g	V _{DS} = -10V, V _{GS} = -2.5V, I _D = -3A		3.3	12	nC
Gate-source charge	Q _{gs}			0.7		
Gate-drain charge	Q _{gd}			1.3		
Turn-on Delay Time	T _{d(on)}	V _{DS} = -10V, V _{GEN} =-4.5V, I _D = -1A, R _{GEN} =1Ω		11		nS
Turn-on Rise Time	T _r			35		
Turn-Off Delay Time	T _{d(off)}			30		
Turn-Off Fall Time	t _f			10		
Source-Drain Diode Characteristics						
Diode Forward voltage	V _{SD}	I _S = -1A, V _{GS} = 0V			-1.3	V

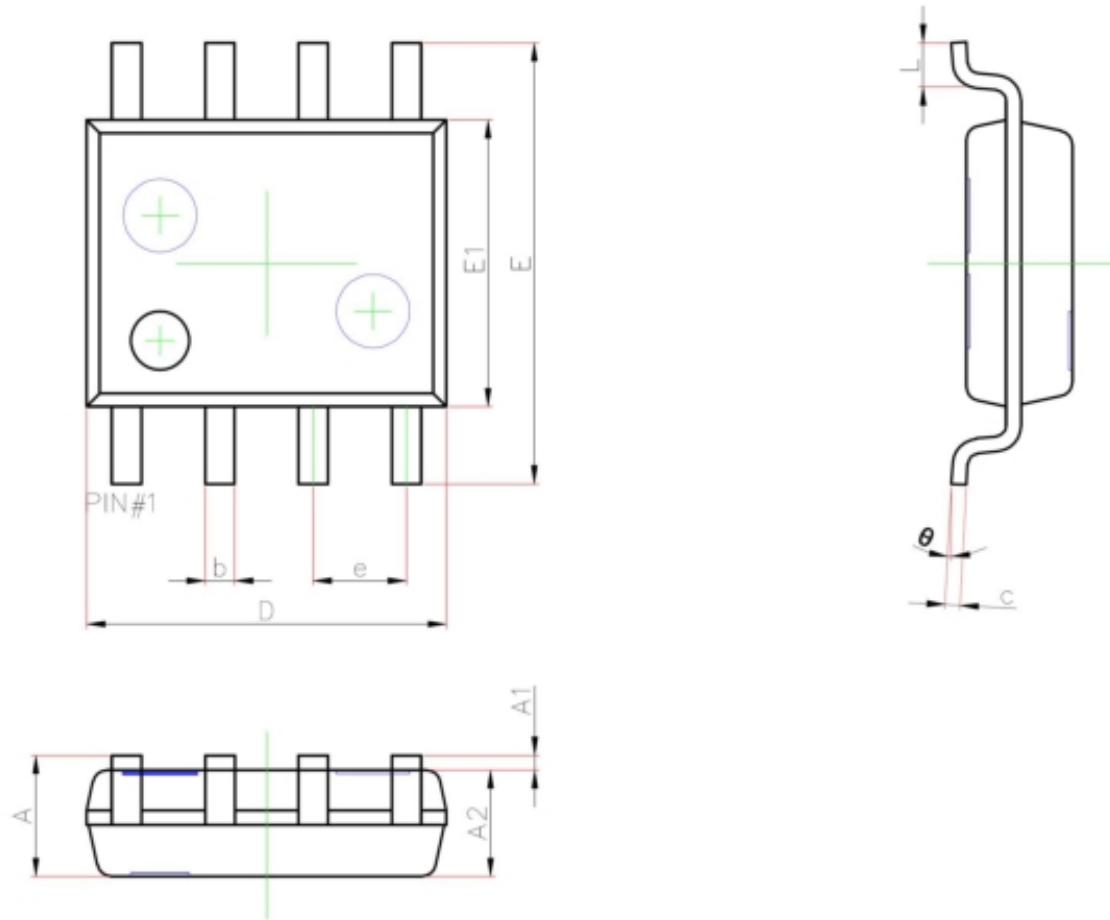
Typical Characteristics - N-Channel Q1



Typical Characteristics - P-Channel Q2



SOP-8 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°