

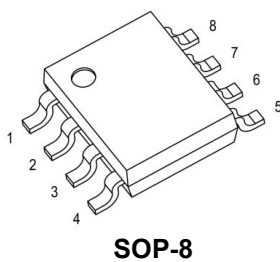
### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
30V	28mΩ@10V	5A
	42mΩ@4.5V	
-30V	38mΩ@-10V	-5A
	58mΩ@-4.5V	

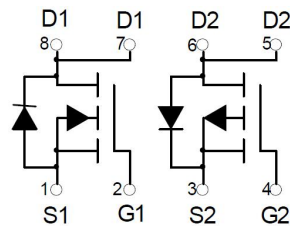
### Feature

- N-Channel  
 $V_{DS} = 30V, I_D = 5A$   
 $R_{DS(ON)} < 38m\Omega @ V_{GS} = 10V$   
 $R_{DS(ON)} < 55m\Omega @ V_{GS} = 4.5V$
- P-Channel  
 $V_{DS} = -30V, I_D = -5A$   
 $R_{DS(ON)} < 50m\Omega @ V_{GS} = -10V$   
 $R_{DS(ON)} < 80m\Omega @ V_{GS} = -4.5V$
- High power and current handling capability
- Lead free product is acquired
- Surface mount package

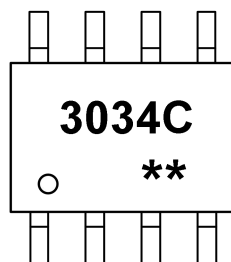
### Package



### Circuit diagram



### Marking



3034C: Product code  
 \*\*: Week code.

**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	Value		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	$V_{DS}$	30	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	$\pm 20$	V
Continuous Drain Current	$I_D$	5	-5	A
Maximum Power Dissipation	$P_D$	2		W
Thermal Resistance from Junction to Ambient( $t \leq 10s$ )	$R_{\theta JA}$	62.5		$^{\circ}C/W$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	-55 To 150	$^{\circ}C$

**N-Channel Electrical characteristics (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 30V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	2.2	V
Drain-source on-resistance <sup>1)</sup>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3.2A$		28	38	m $\Omega$
		$V_{GS} = 4.5V, I_D = 2.8A$		42	55	
Forward transconductance <sup>1)</sup>	$g_{FS}$	$V_{DS} = 4.5V, I_D = 2.5A$	2.5			S
<b>Dynamic characteristics<sup>2)</sup></b>						
Total gate charge	$Q_g$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 3.4A$		4.5	6.7	nC
				2.1	3.2	
				0.85		
Gate-source charge	$Q_{gs}$	$V_{DS} = 15V, V_{GS} = 4.5V, I_D = 3.4A$		0.85		pF
Gate-drain charge	$Q_{gd}$			0.65		
Input Capacitance	$C_{iss}$	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		235		pF
Output Capacitance	$C_{oss}$			45		
Reverse Transfer Capacitance	$C_{rss}$			17		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V, R_L = 5.6\Omega, I_D \approx 2.7A, V_{GEN} = 4.5V, R_g = 1\Omega$		12	20	ns
Turn-on rise time	$t_r$			50	75	
Turn-off delay time	$t_{d(off)}$			12	20	
Turn-off fall time	$t_f$			22	35	
<b>Source-Drain Diode characteristics</b>						
Continuous source-drain diode current	$I_S$	$T_C = 25^{\circ}C$			5	A
Pulse diode forward current	$I_{SM}$				20	A
Body diode voltage	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$			1.2	V

**Notes:**

- 1) Pulse Test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- 2) Guaranteed by design, not subject to production testing.

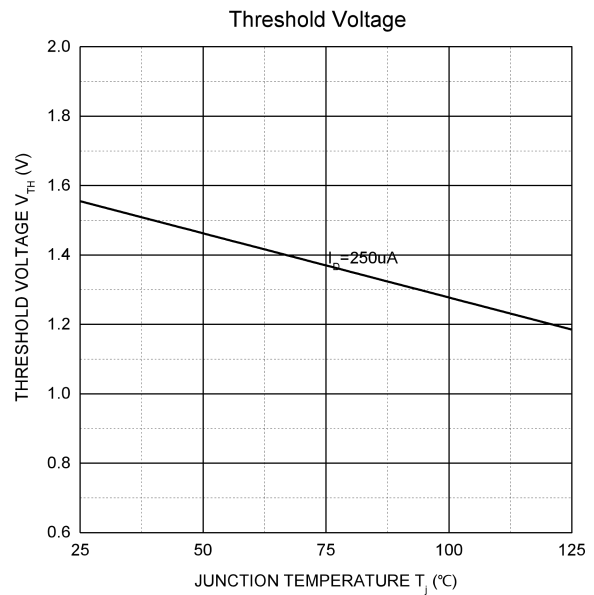
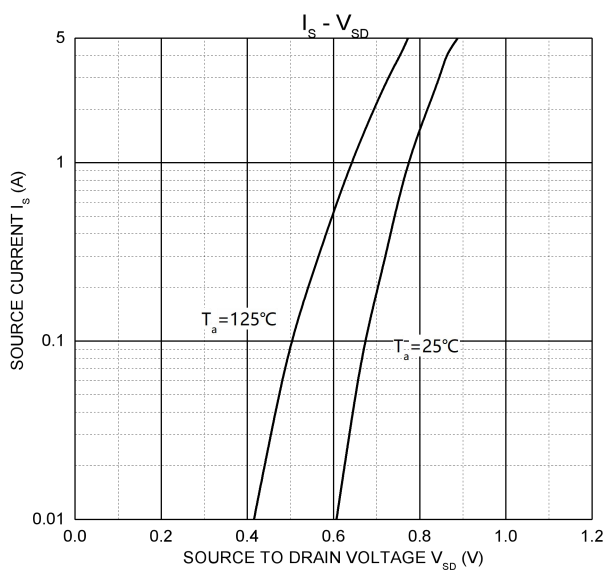
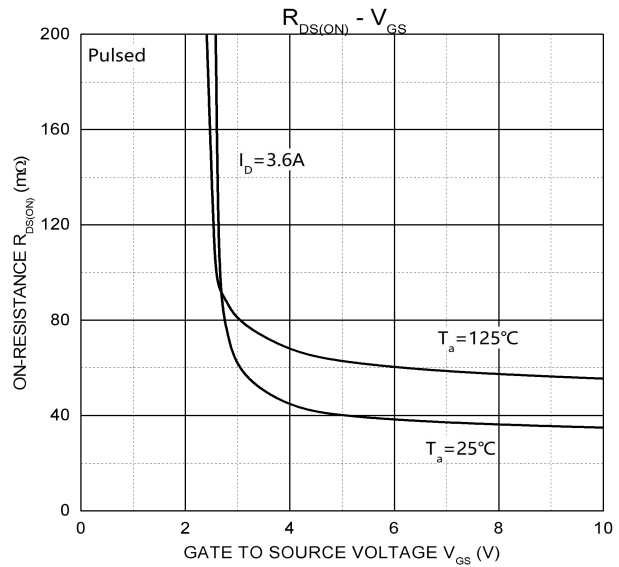
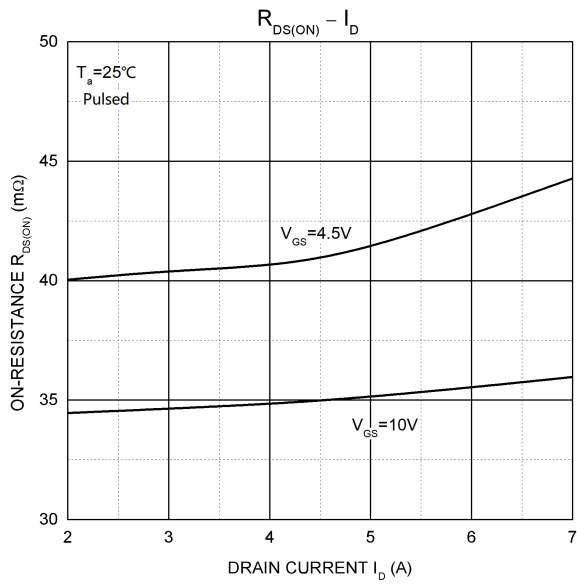
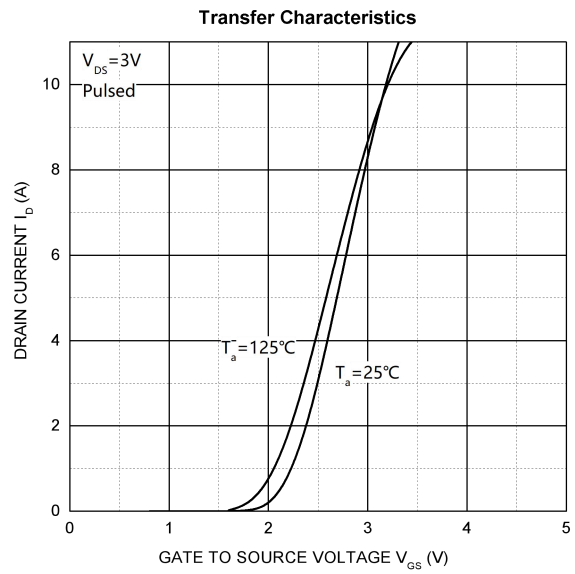
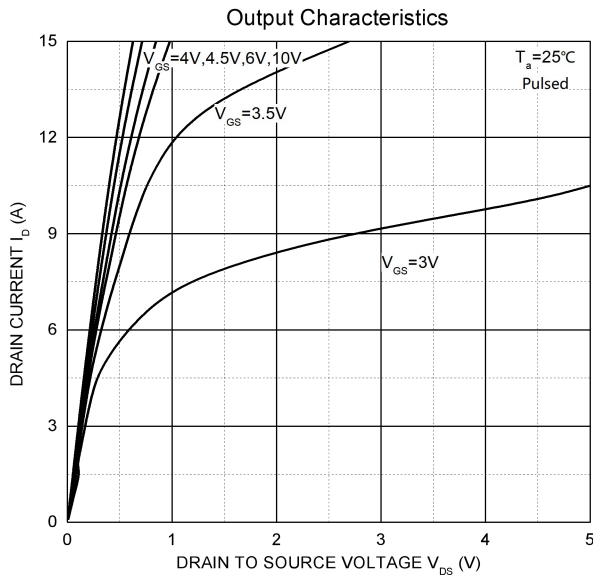
**P-Channel Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	-30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
<b>On characteristics<sup>2)</sup></b>						
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	-1.0	-1.5	-2.0	V
Drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.1A		38	50	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3A		58	80	
<b>Switching characteristics<sup>1)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz		720		pF
Output Capacitance	C <sub>oss</sub>			120		
Reverse Transfer Capacitance	C <sub>rss</sub>			75		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15V, I <sub>D</sub> = -1A, V <sub>GS</sub> = -10V, R <sub>G</sub> = 3Ω, R <sub>L</sub> = 3.6Ω		8.6		ns
Turn-on rise time	t <sub>r</sub>			5.0		
Turn-off delay time	t <sub>d(off)</sub>			28.2		
Turn-off fall time	t <sub>f</sub>			13.5		
<b>Drain-Source Diode characteristics</b>						
Diode Forward voltage <sup>2)</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1A			-1.2	V

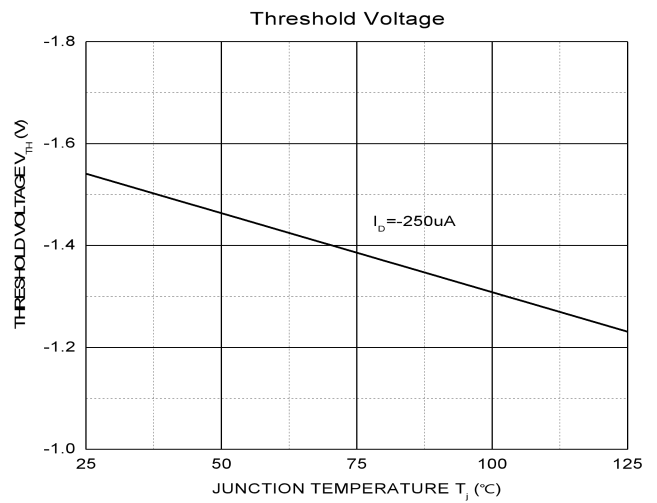
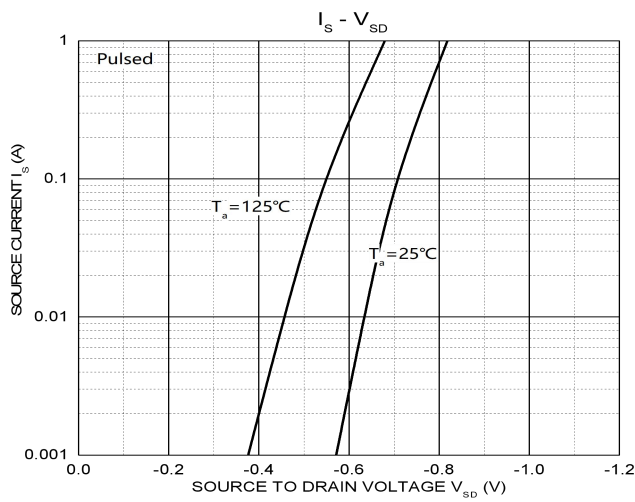
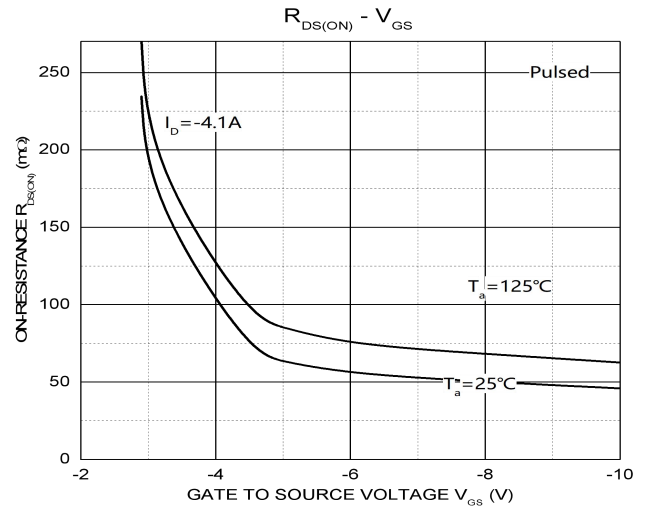
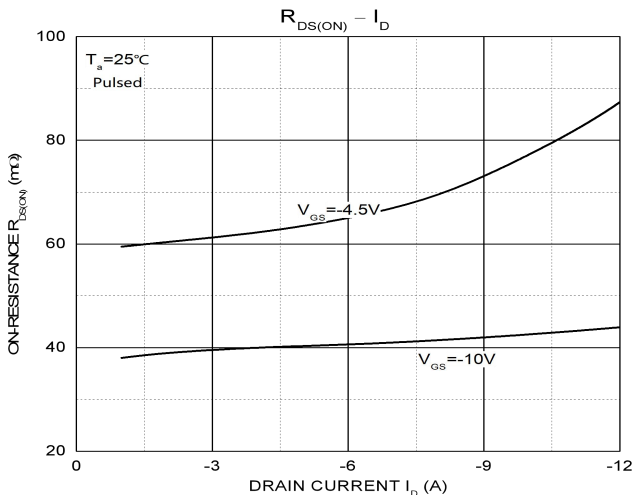
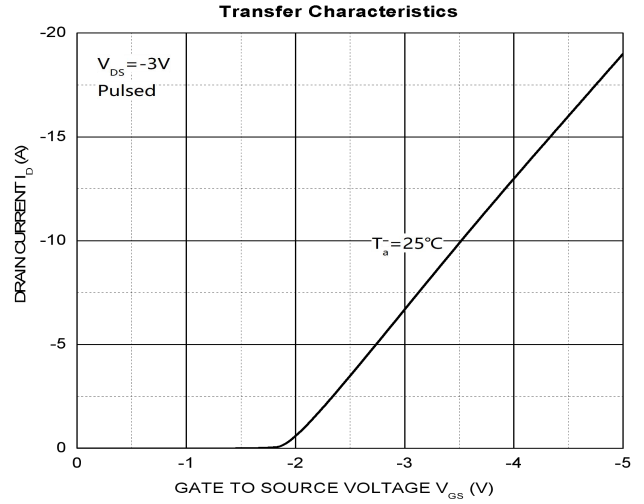
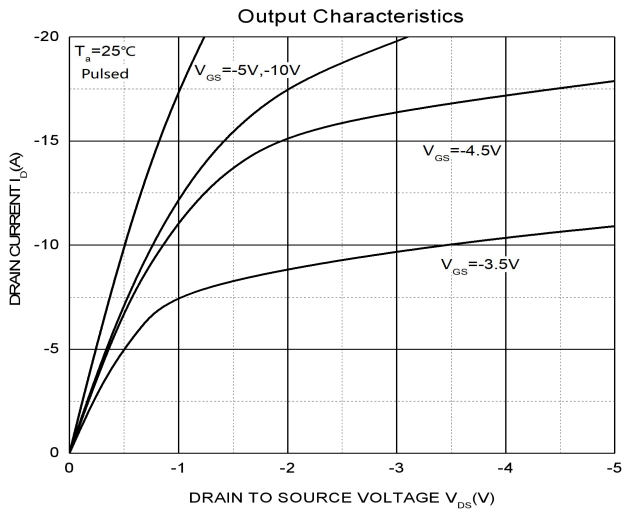
**Notes:**

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

**N-Channel Typical Characteristics**

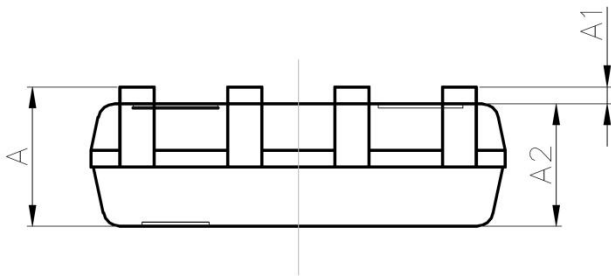
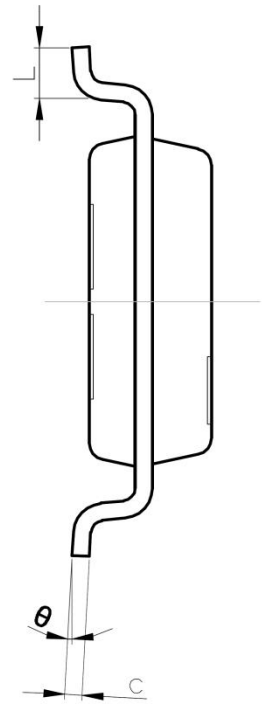
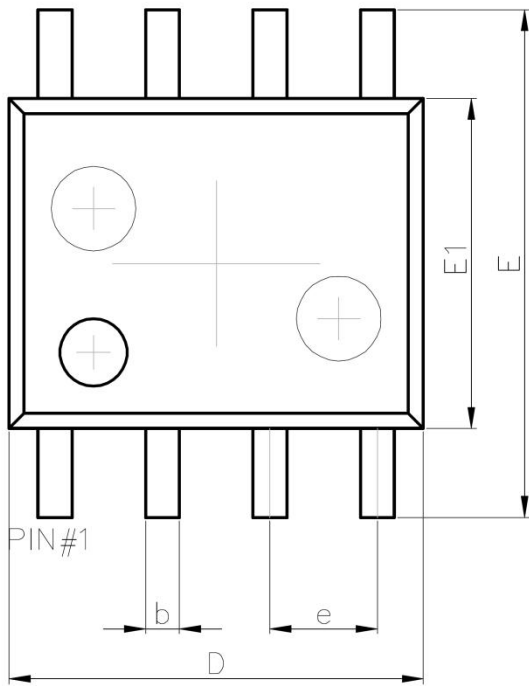


**P-Channel Typical Characteristics**





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
$\theta$	0°	8°

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