

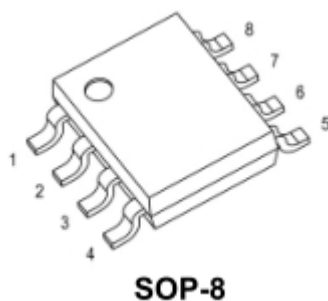
Product Summary

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

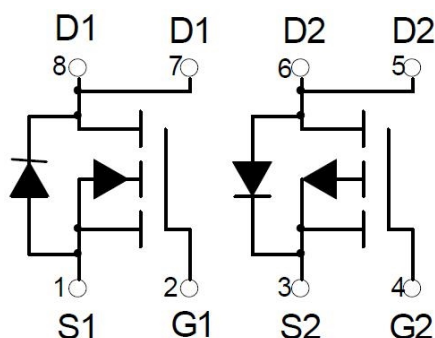
Feature

- 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 handing capability
- Lead free product is acquired
- Surface mount package

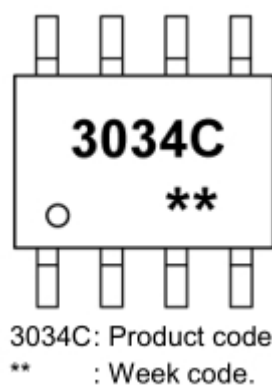
Package



Circuit diagram



Marking



Absolute maximum ratings

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

Parameter	Symbol	Value		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 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		$^{\circ}\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~ +150		$^{\circ}\text{C}$

N-Channel Electrical characteristics

($T_A=25^{\circ}\text{C}$, 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	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} = 0V			1	uA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	uA
Gate threshold voltage ⁽¹⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.2	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.2.A		28	38	mΩ
		V _{GS} =4.5V, I _D =2.8A		42	55	
Forward transconductance ¹⁾	g _{FS}	V _{DS} =4.5V, I _D =2.5A	2.5			S
Dynamic Characteristics						
Total gate charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =3.4A		4.5	6.7	nC
		V _{DS} =15V, V _{GS} =4.5V, I _D =3.4A		2.1	3.2	
Gate-source charge	Q _{gs}			0.85		
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 _{DS} =15V, R _L =5.6Ω, I _D ≈2.7A, V _{GEN} =4.5V , R _G =1Ω		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	
Source-Drain Diode Characteristics						
Continuous source-drain diode current	I _S	T _C =25°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

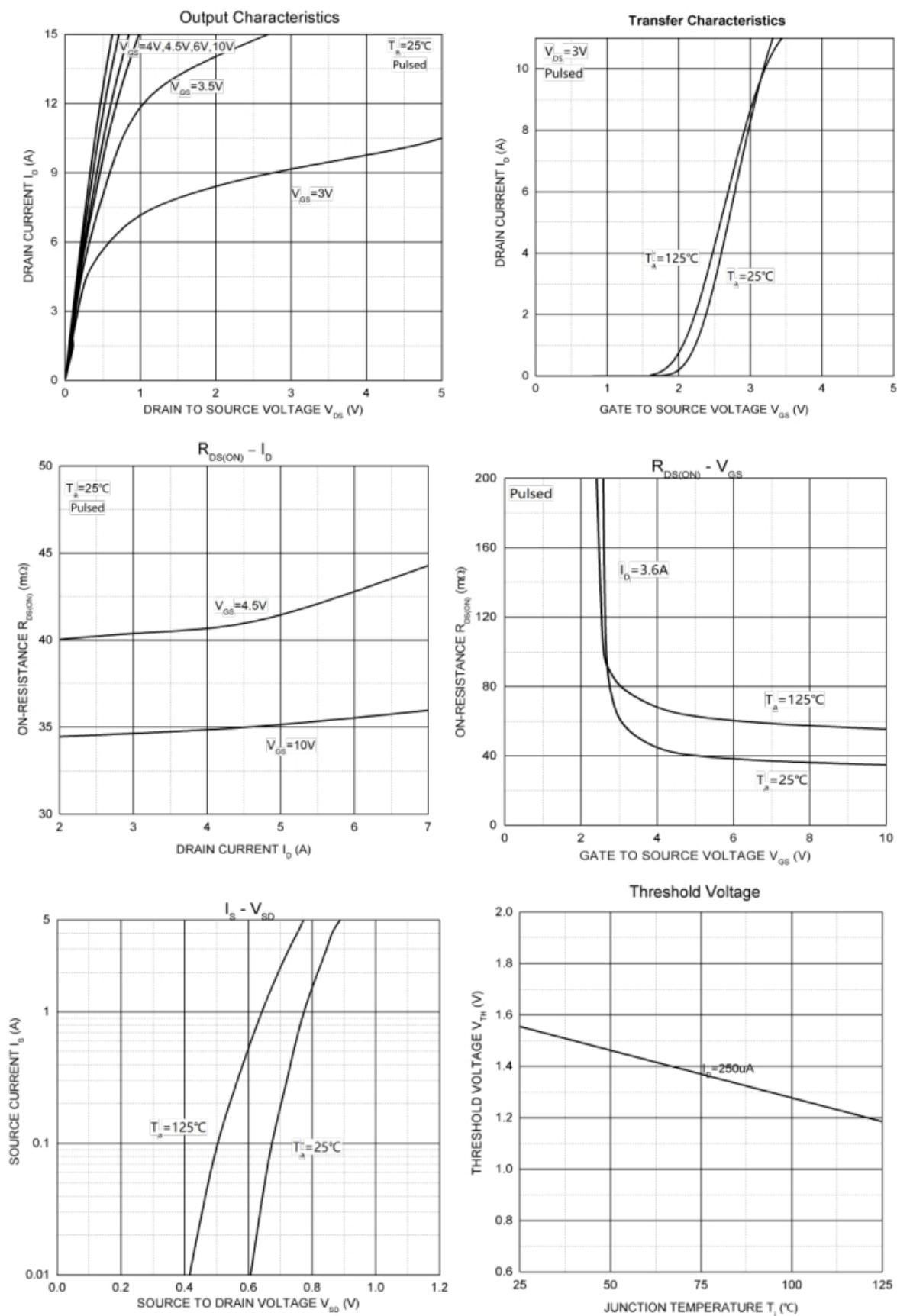
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	μA
On characteristics						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.5	-2.0	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.1A$		38	50	m Ω
		$V_{GS} = -4.5V, I_D = -3A$		58	80	
Switching Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V,$ $f = 1MHz$		720		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			75		
Turn-on Delay Time	$T_{d(on)}$	$V_{DD} = -15V, I_D = -1A,$ $V_{GS} = -10V, R_G = 3\Omega,$ $R_L = 3.6\Omega$		8.6		nS
Turn-on Rise Time	T_r			5.0		
Turn-Off Delay Time	$T_{d(off)}$			28.2		
Turn-Off Fall Time	t_f			13.5		
Source-Drain Diode Characteristics						
Body Diode Voltage	V_{SD}	$I_S = -1A, V_{GS} = 0V$			-1.2	V

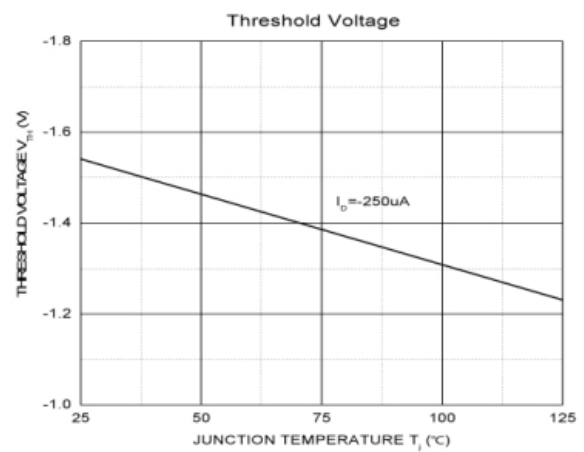
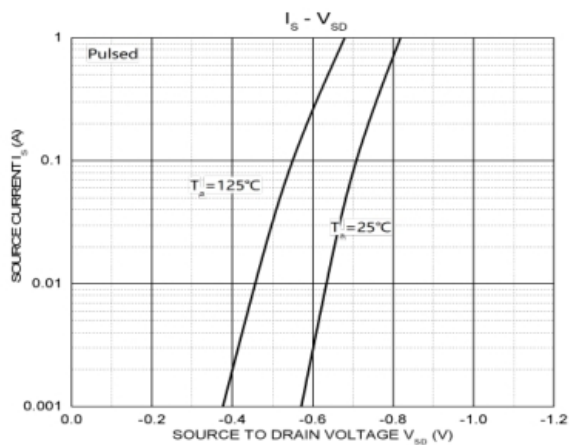
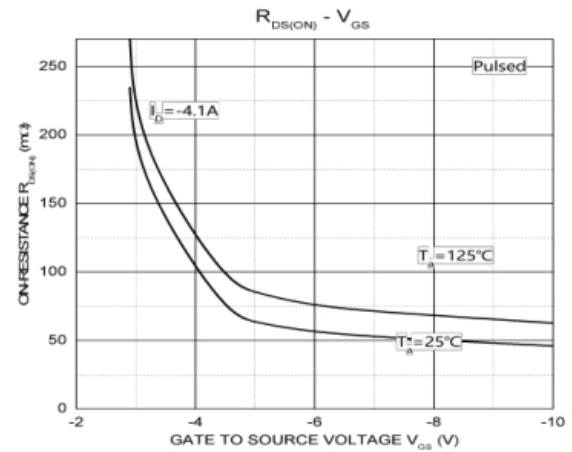
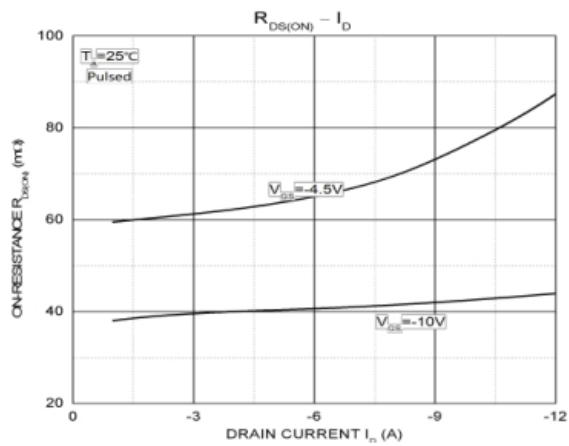
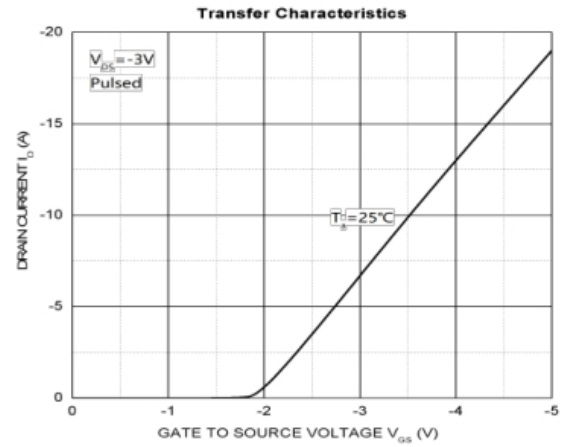
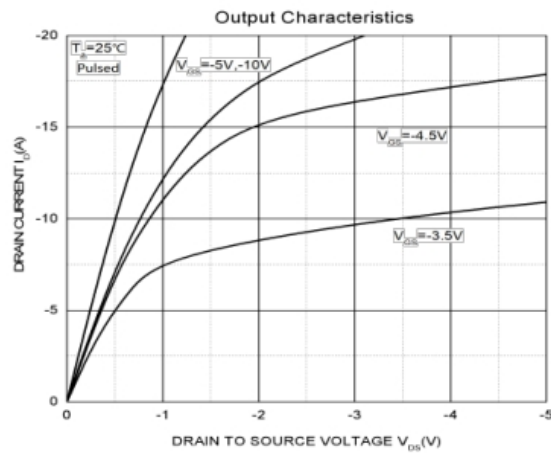
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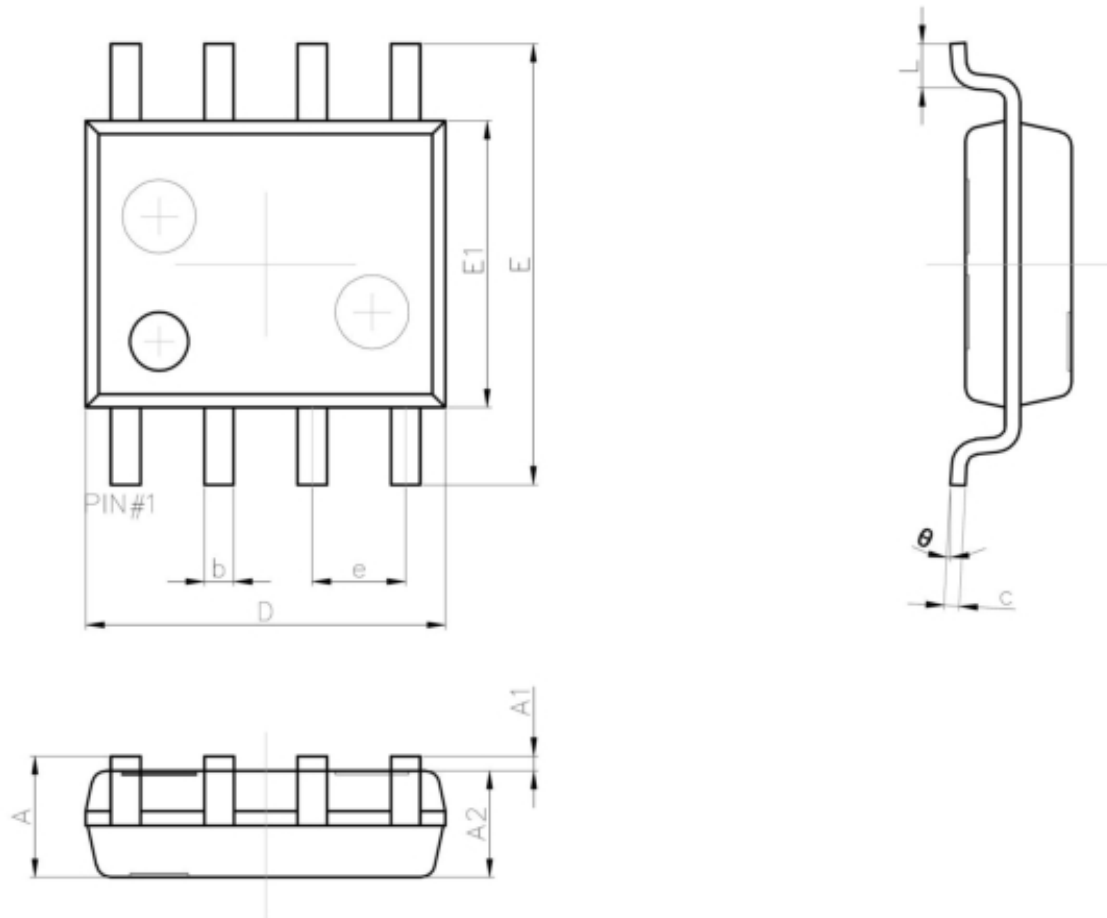
N-Channel Typical Characteristics



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
θ	0°	8°