Product Summary

V$_{(BR)DSS}$	R$_{DS(on)TYP}$	I$_D$
100V	70mΩ@10V	6A
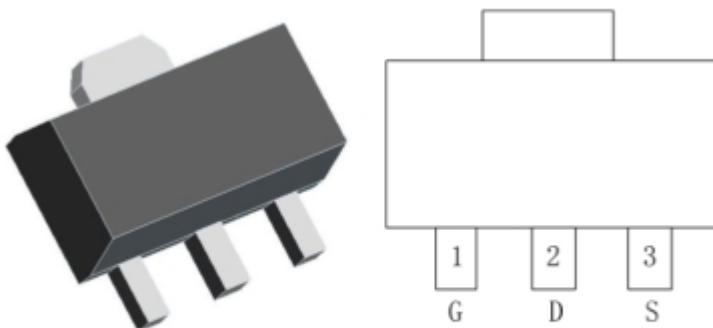
Feature

- V$_{DS}$ 100V
- I$_D$ 6A
- R$_{DS(ON)}$(at V$_{GS}$=10V)   < 100 mohm
- R$_{DS(ON)}$(at V$_{GS}$=4.5V)   < 120 mohm

Application
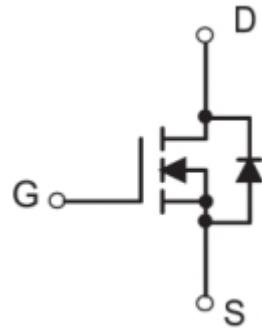
- DC-DC Converters
- Power management functions

Package
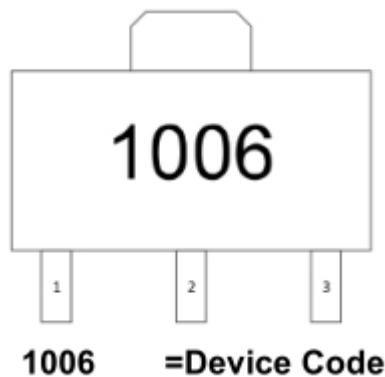
SOT-89-3L

Circuit diagram

Marking

1006　　=Device Code

Absolute maximum ratings

(T$_a$=25℃ unless otherwise noted)
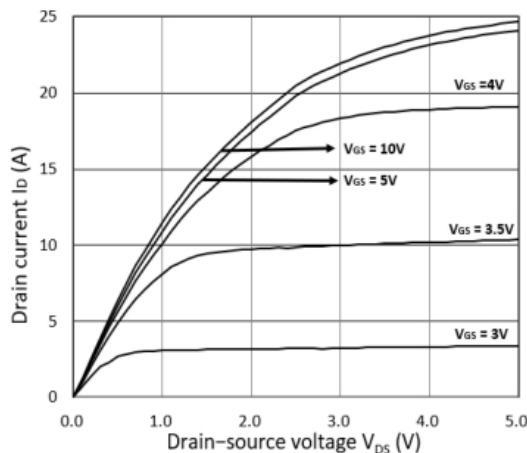
Parameter		Symbol	Value	Unit
Drain-Source Voltage		V$_{DS}$	100	V
Gate-Source Voltage		V$_{GS}$	±20	V
Drain Current-Continuous		I$_D$	6	A
Pulsed Drain Current		I$_{DM}$	24	A
Maximum Power Dissipation	T$_A$=25℃	P$_D$	1.5	W
	T$_C$=25℃		4.0	
Thermal Resistance,Junction-to-Ambient[1]		R$_{θJA}$	83	℃/ W
Thermal Resistance Junction-to-Case[1]		R$_{θJC}$	31	℃/ W
Operating Junction and Storage Temperature Range		T$_J$, T$_{STG}$	-55~ +175	℃

Electrical characteristics
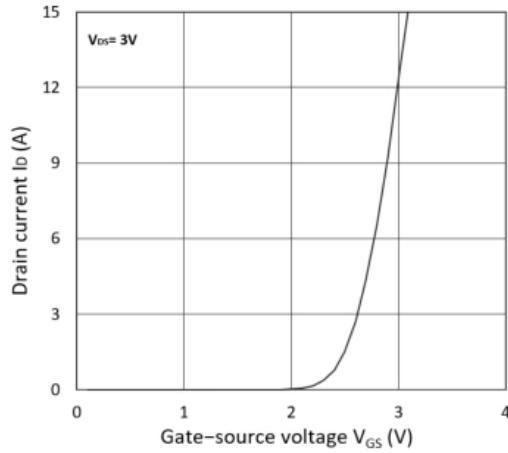
(T_A=25℃, unless otherwise noted)

| Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =250μA	100	110		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =100V,V_{GS} = 0V			1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.2	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =5A		70	100	mΩ
		V_{GS} =4.5V, I_D =3A		85	120	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, f=1MHz		1100		pF
Output Capacitance	C_{oss}			55		
Reverse Transfer Capacitance	C_{rss}			40		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DD}=50V, R_G=3Ω, I_D=5A		3.9		nS
Rise Time	T_r			26		
Turn-Off Delay Time	$T_{d(off)}$			16.2		
Fall Time	T_f			8.9		
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=80V, I_D=5A		12		nC
Gate-Source Charge	Q_{gS}			2.9		
Gate-Drain Charge	Q_{gd}			1.8		
Drain-Source Diode Characteristics						
Diode forward voltage	V_{SD}	V_{GS}=0V, I_S=1A			1.2	V
Diode Forward Current	I_S				6	A
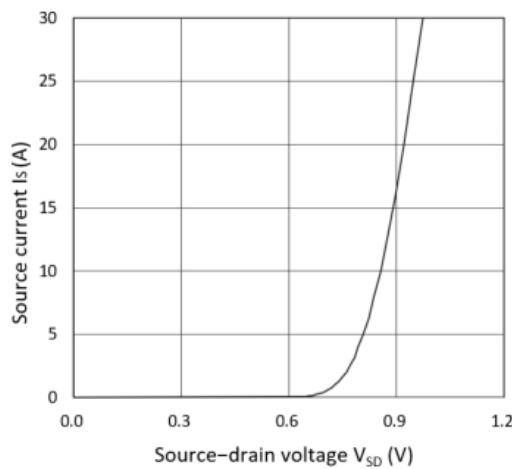
Typical Characteristics
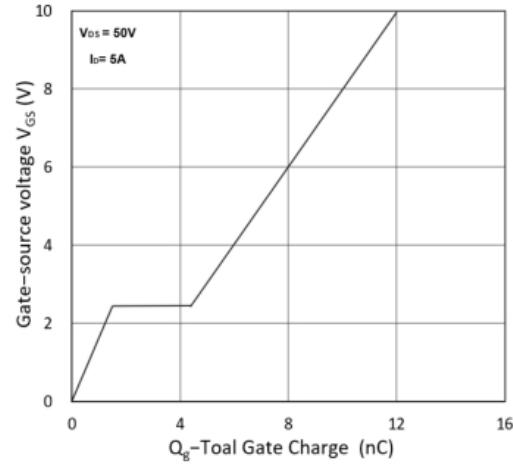
Output Characteristics
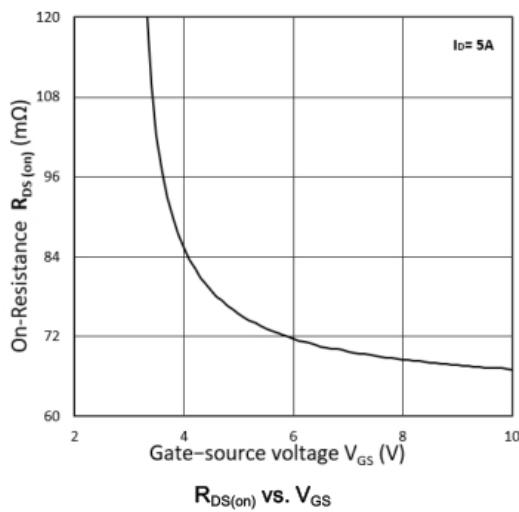
Transfer Characteristics
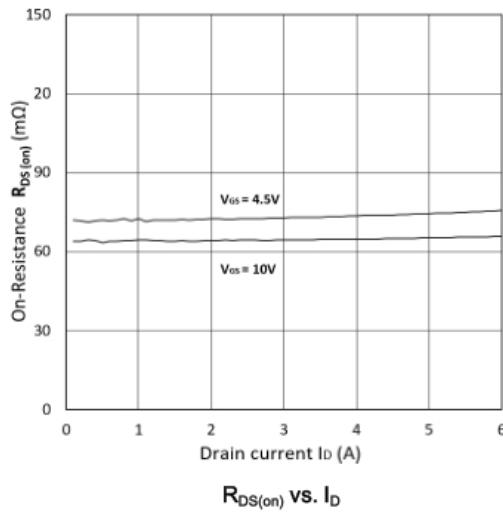
Forward Characteristics of Reverse
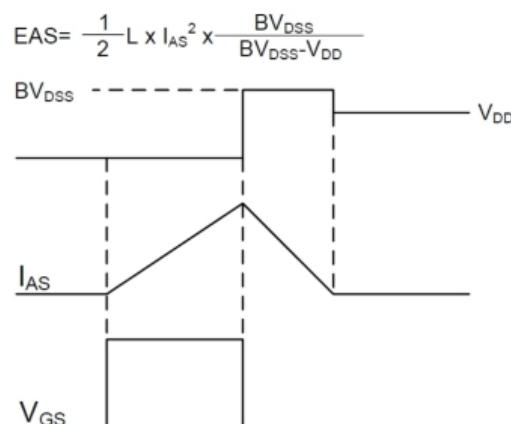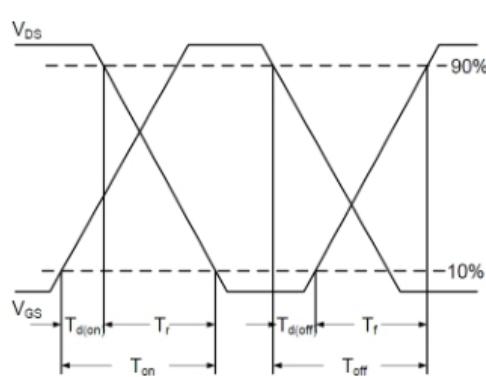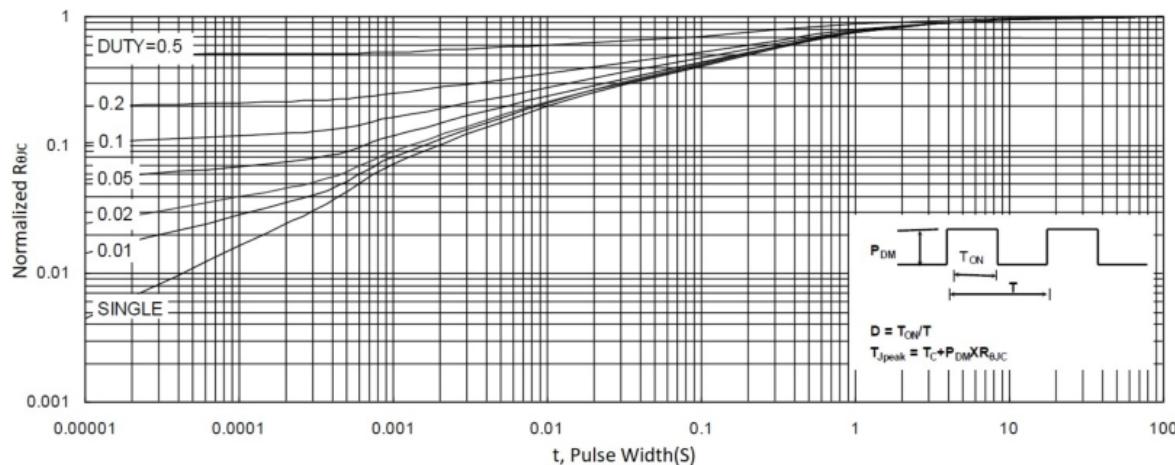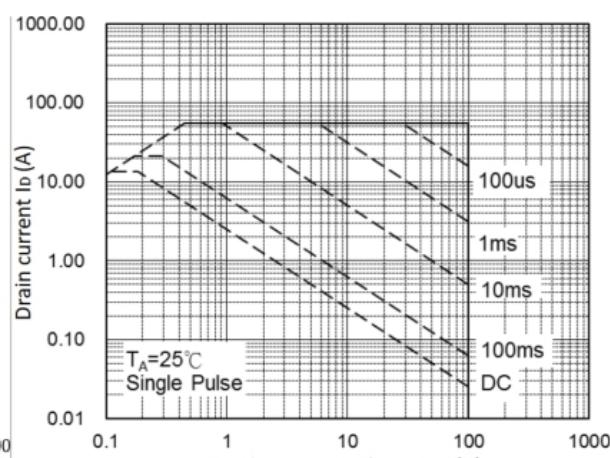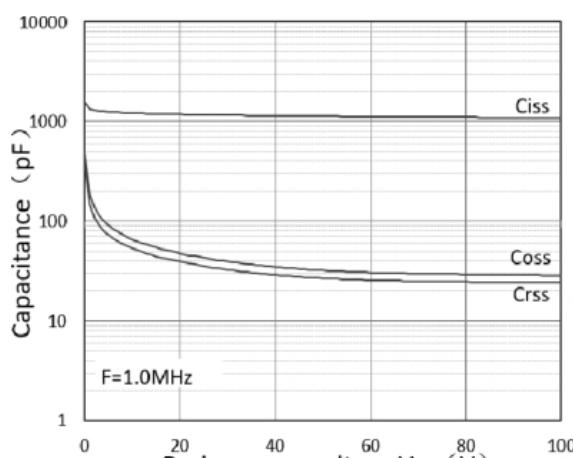
Gate Charge Characteristics

$R_{DS(on)}$ vs. V_{GS}

$R_{DS(on)}$ vs. I_D

Capacitance Characteristics

Safe Operating Area

Normalized Maximum Transient Thermal Impedance

$$EAS= \frac{1}{2} L \times I_{AS}^2 \times \frac{BV_{DSS}}{BV_{DSS}-V_{DD}}$$

Switching Time Waveform

Unclamped Inductive Switching Waveform
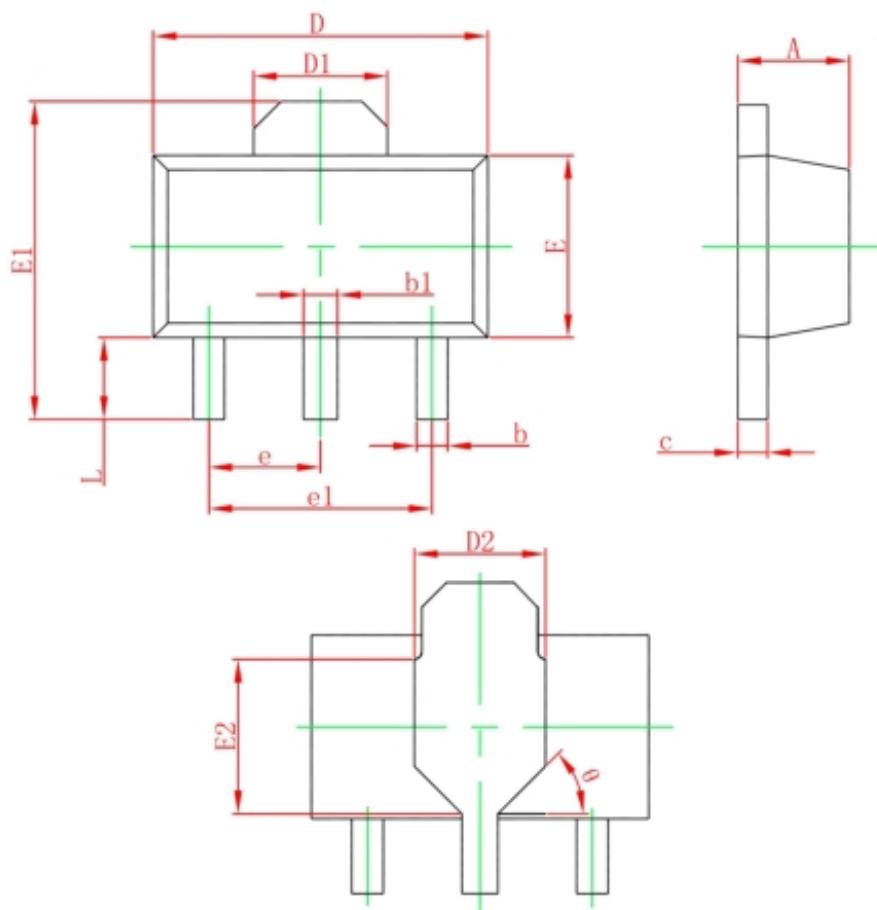
SOP-89-3L Package Information

Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.400	1.600
b	0.320	0.520
b1	0.400	0.580
c	0.350	0.440
D	4.400	4.600
D1	1.550 REF.	
D2	1.750 REF.	
E	2.300	2.600
E1	3.940	4.250
E2	1.900 REF.	
e	1.500 TYP.	
e1	3.000 TYP.	
L	0.900	1.200
θ	45°	