

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	70mΩ@10V	6A

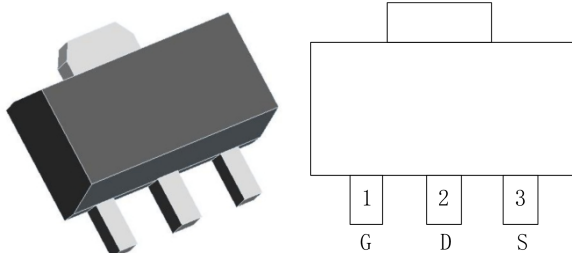
Feature

- VDS 100V
- ID 6A
- $R_{DS(ON)}$ (at VGS=10V) < 100 mohm
- $R_{DS(ON)}$ (at VGS=4.5V) < 120 mohm

Application

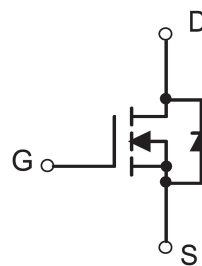
- DC-DC Converters
- Power management functions

Package

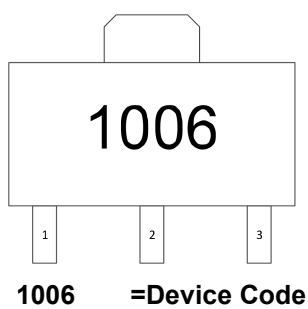


SOT-89-3L

Circuit diagram



Marking



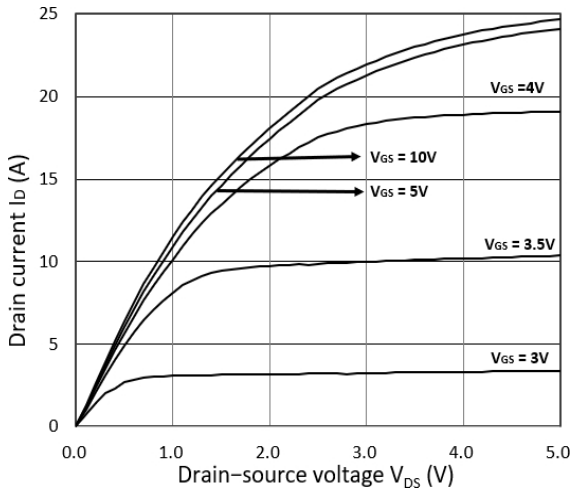
Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Limit	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	P_D	$T_A=25^\circ\text{C}$	1.5
		$T_C=25^\circ\text{C}$	4.0
Thermal Resistance, Junction-to-Ambient ¹	$R_{\theta JA}$	83	°C/W
Thermal Resistance, Junction-to-Case ¹	$R_{\theta JC}$	31	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 175	°C

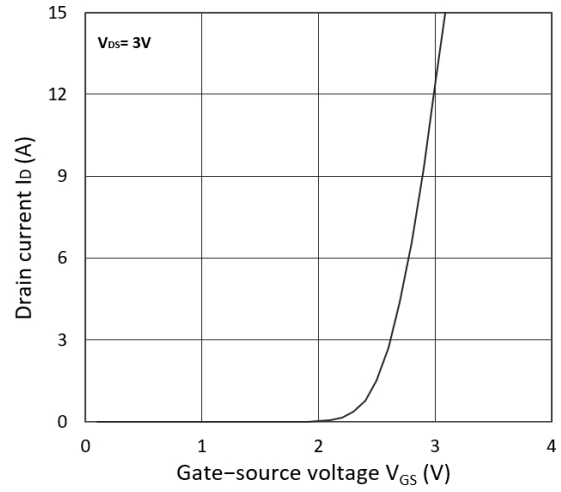
Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	110	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$	-	70	100	m Ω
		$V_{GS}=4.5V, I_D=3A$	-	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	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 50V,$ $RG = 3\Omega, I_D = 5A$	-	3.9	-	nS
Turn-on Rise Time	t_r		-	26	-	
Turn-Off Delay Time	$t_{d(off)}$		-	16.2	-	
Turn-Off Fall Time	t_f		-	8.9	-	
Total Gate Charge	Q_g	$V_{GS} = 10V, V_{DS} = 50V, I_D = 5A$	-	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

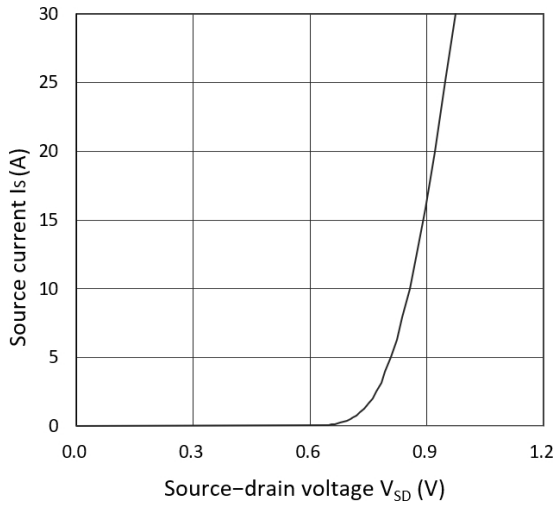
Typical Characteristics



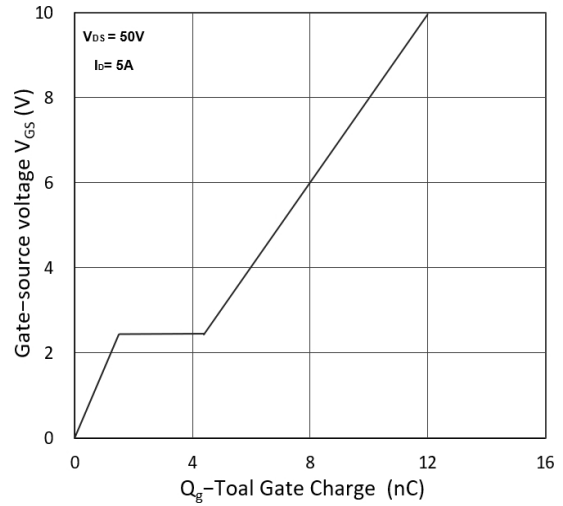
Output Characteristics



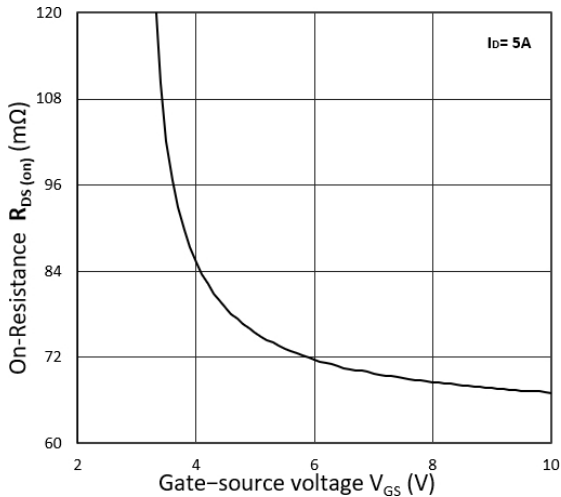
Transfer Characteristics



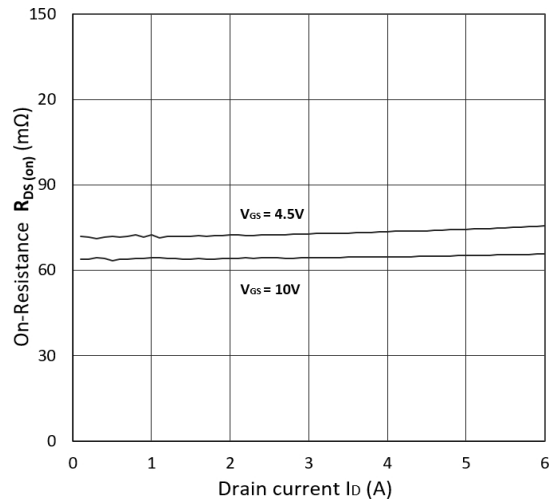
Forward Characteristics of Reverse



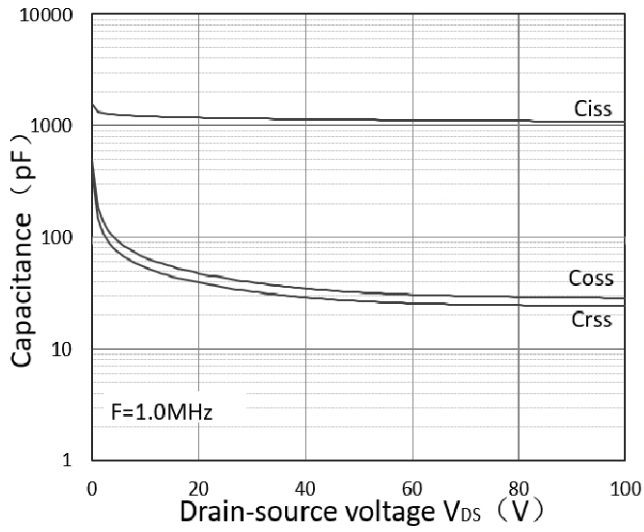
Gate Charge Characteristics



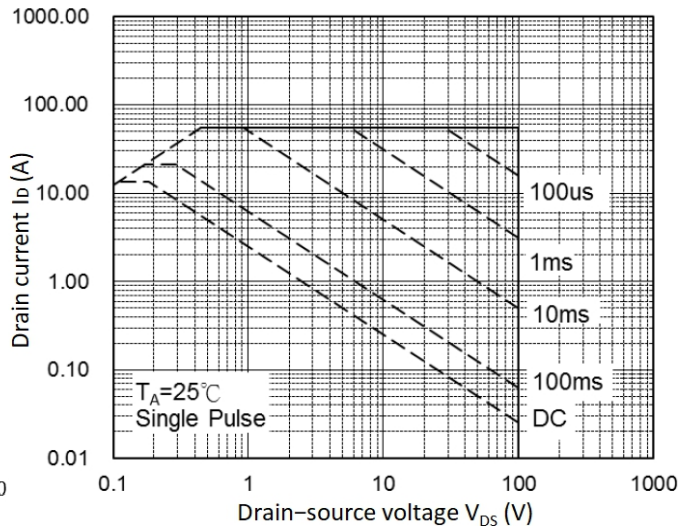
$R_{DS(on)}$ vs. V_{GS}



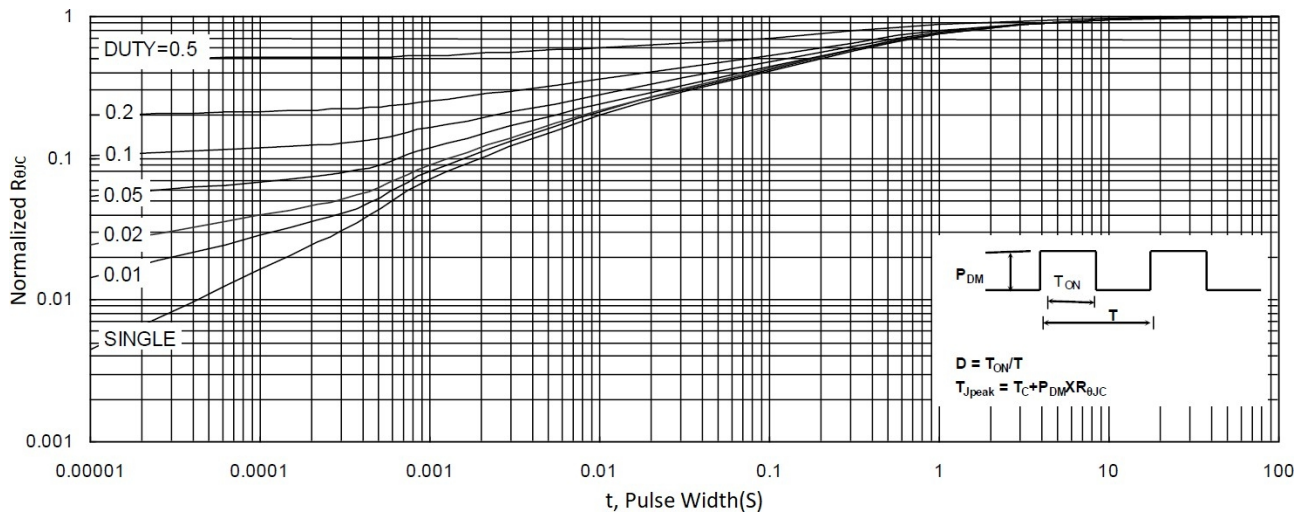
$R_{DS(on)}$ vs. I_D



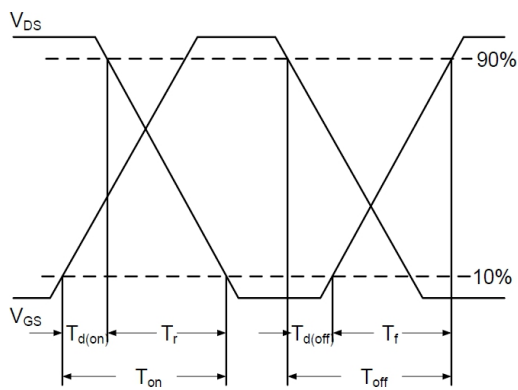
Capacitance Characteristics



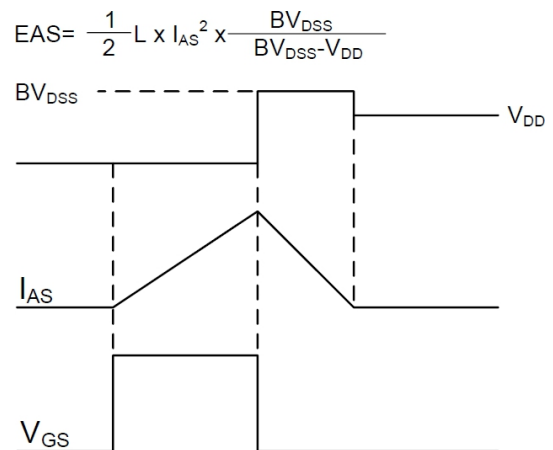
Safe Operating Area



Normalized Maximum Transient Thermal Impedance



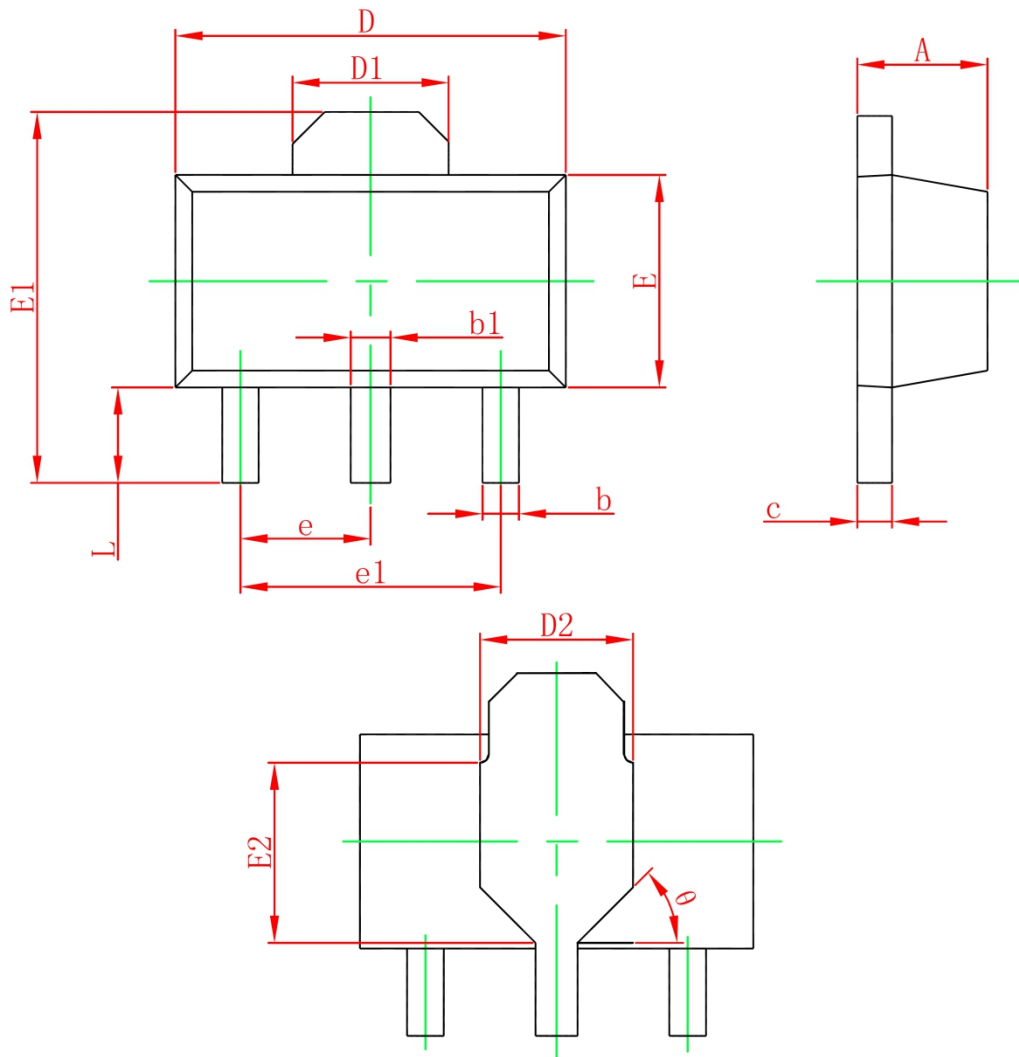
Switching Time Waveform



Unclamped Inductive Switching Waveform



SOT-89-3L Package Outline



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°	