



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	90mΩ@10V	5A

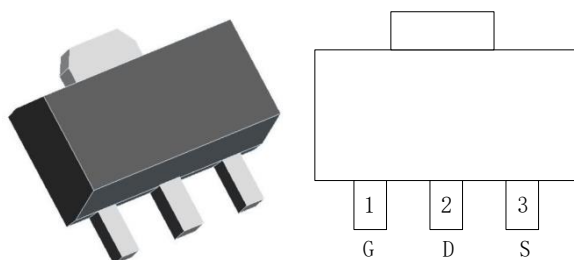
Feature

- High power and current handling capability
- Surface mount package

- DC-DC Converters
- Power management functions

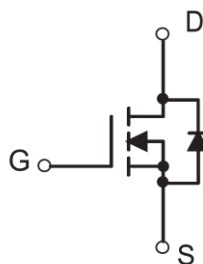
Application

Package

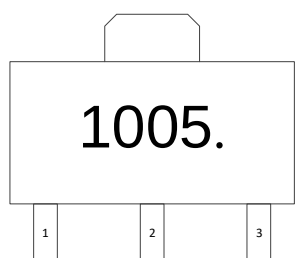


SOT-89-3L

Circuit diagram



Marking



1005. =Device Code

**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	5	A
Pulsed Drain Current		I_{DM}	20	A
Maximum Power Dissipation	$T_A=25^\circ\text{C}$	P_D	1.5	W
	$T_C=25^\circ\text{C}$		4.0	
Thermal Resistance,Junction-to-Ambient ¹		$R_{\theta JA}$	83	$^\circ\text{C/W}$
Thermal Resistance,Junction-to-Case ¹		$R_{\theta JC}$	31	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 175	$^\circ\text{C}$

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V ID=250μA	100	110	-	V
Zero Gate Voltage Drain Current	IDSS	VDS=100V,VGS=0V	-	-	1	μA
Gate-Body Leakage Current	IGSS	VGS=±20V,VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS,ID=250μA	1.0	1.5	2.5	V
Drain-Source On-State Resistance	RDS(ON)	VGS=10V, ID=5A	-	90	130	mΩ
		VGS=4.5V, ID=3A	-	100	140	
Dynamic Characteristics ³						
Input Capacitance	Ciss	VDS=50V,VGS=0V,f=1MHz	-	790	-	PF
Output Capacitance	Coss		-	38	-	
Reverse Transfer Capacitance	Crss		-	30	-	
Total Gate Charge	Qg	VGS=10V,VDS=50V,ID=3A	-	16	-	nC
Gate-Source Charge	Qgs		-	2.5	-	
Gate-Drain Charge	Qgd		-	2.6	-	
Switching Characteristics ³						
Turn-on Delay Time	td(on)	VGS=10V,VDD=50V,RL=6.4Ω RGEN=3Ω	-	5	-	nS
Turn-on Rise Time	tr		-	40	-	
Turn-Off Delay Time	td(off)		-	20	-	
Turn-Off Fall Time	tf		-	7	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ²	VSD	VGS=0V,IS=1A	-	-	1.2	V
Diode Forward Current ¹	IS		-	-	6	A

Notes:

1. Surface Mounted on FR4 Board, $t \leq 10$ sec.
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
3. Guaranteed by design, not subject to production



Typical Characteristics

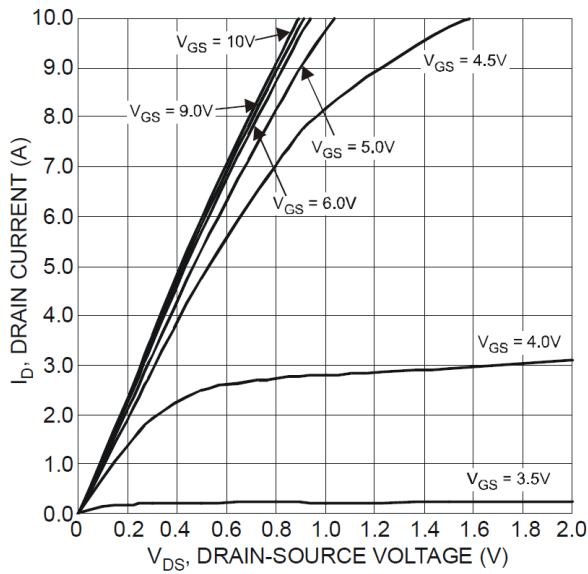


Figure 1 Typical Output Characteristic

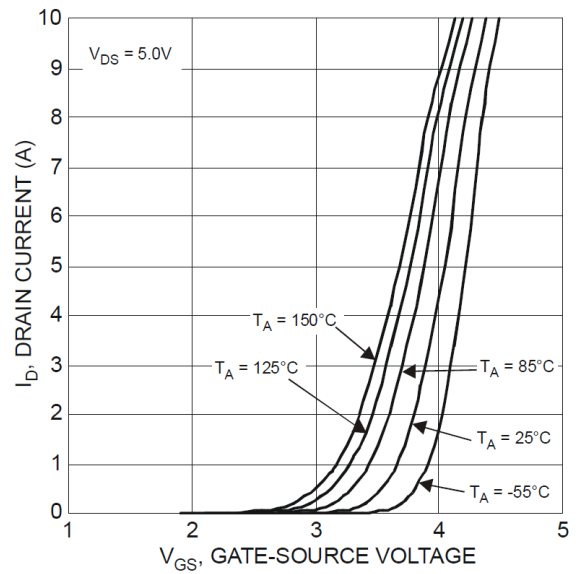


Figure 2 Typical Transfer Characteristics

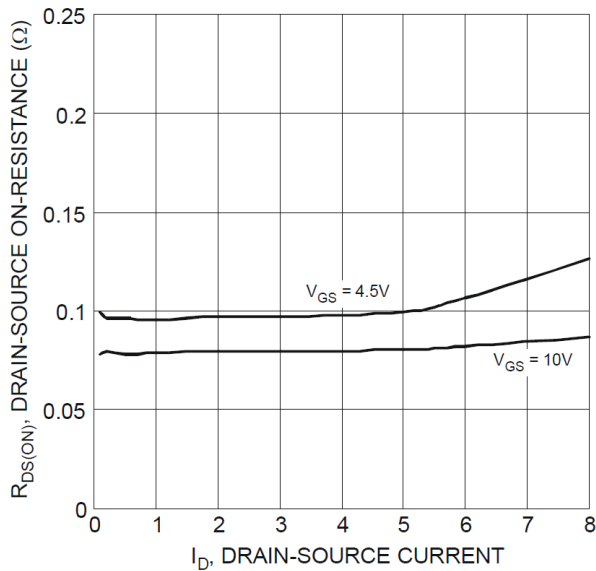


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

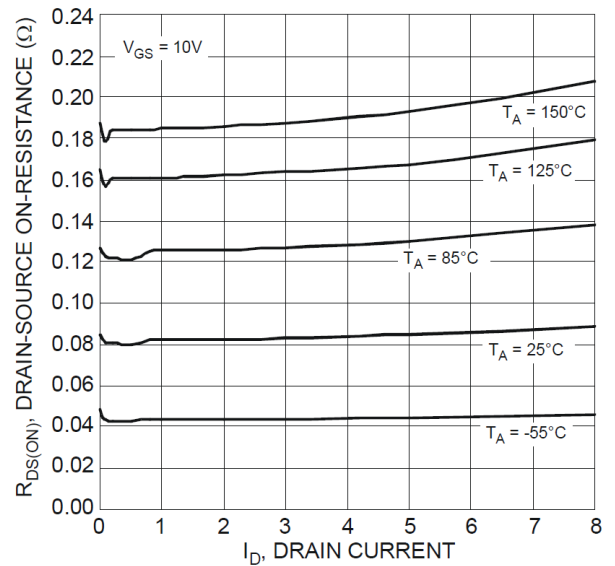


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

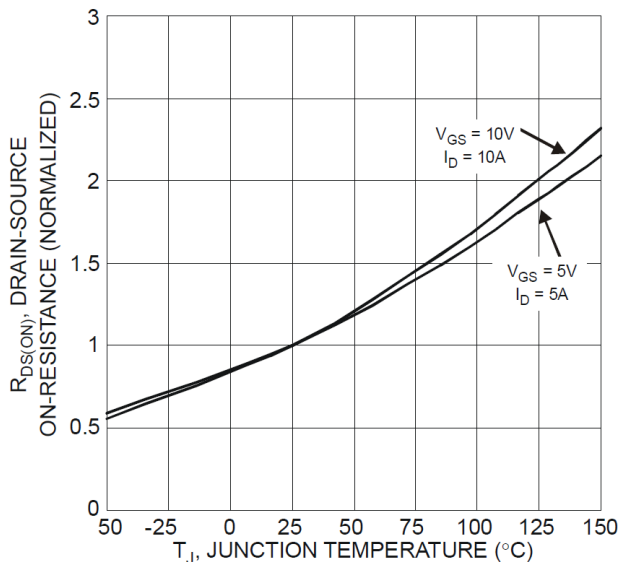


Figure 5 On-Resistance Variation with Temperature

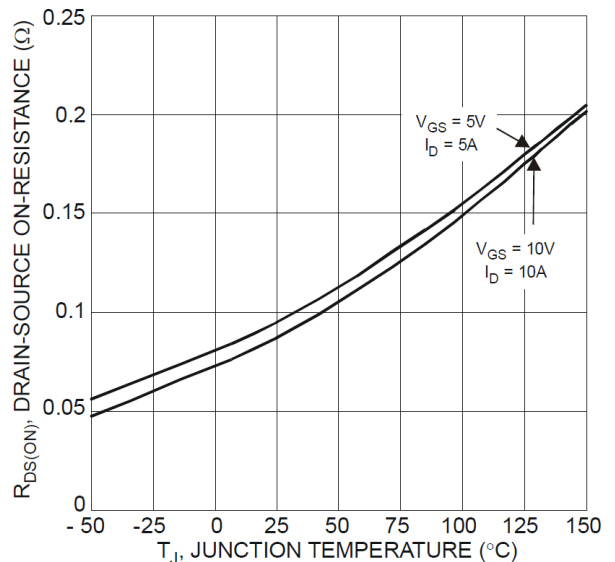
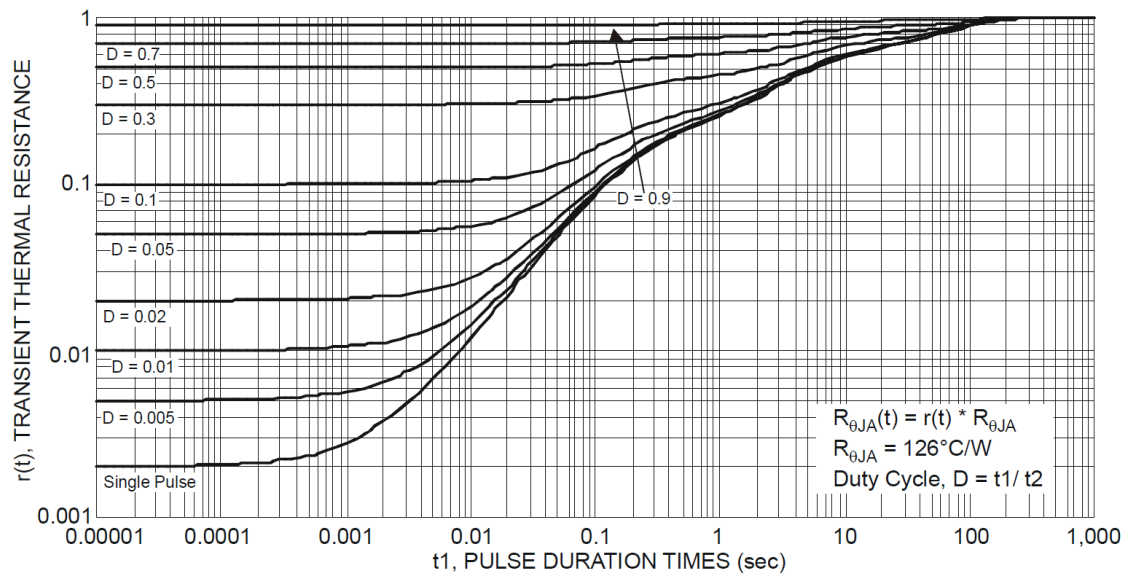
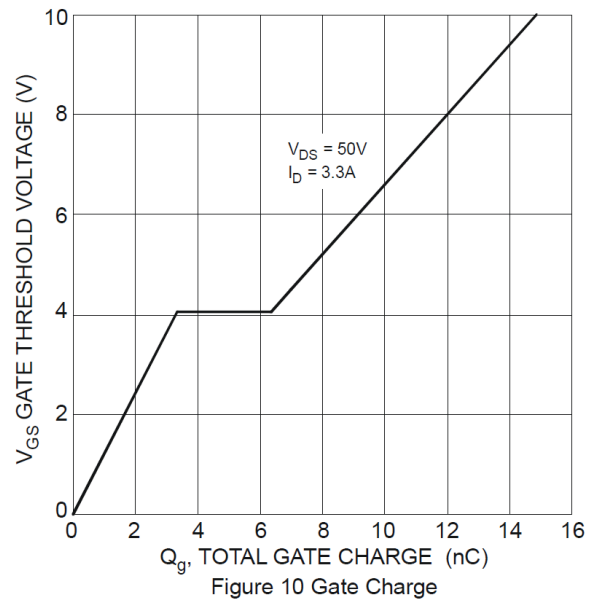
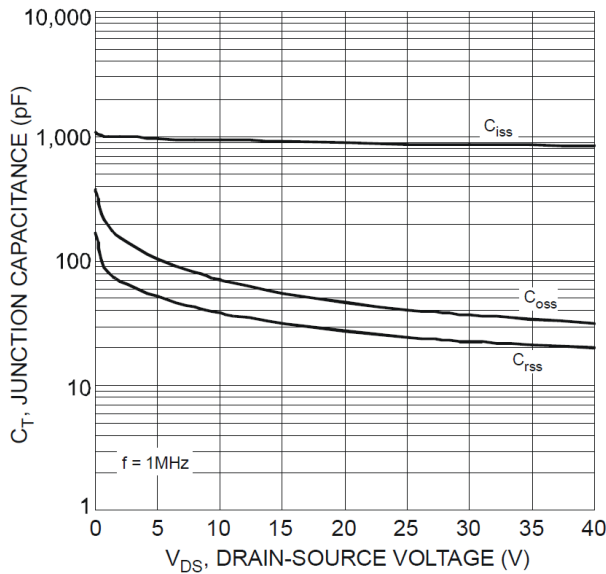
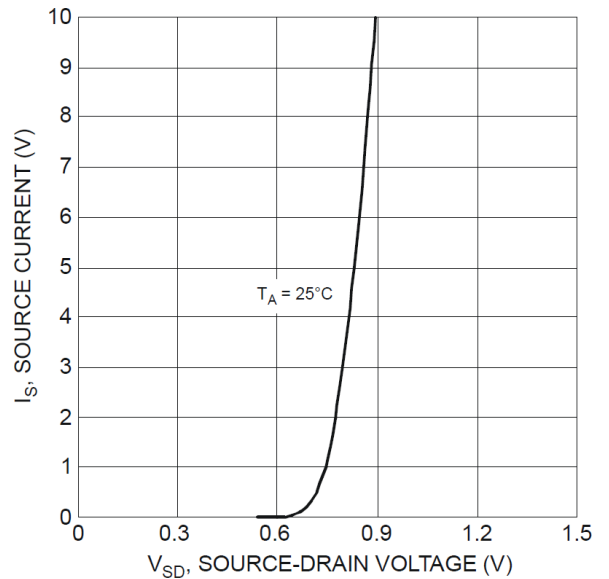
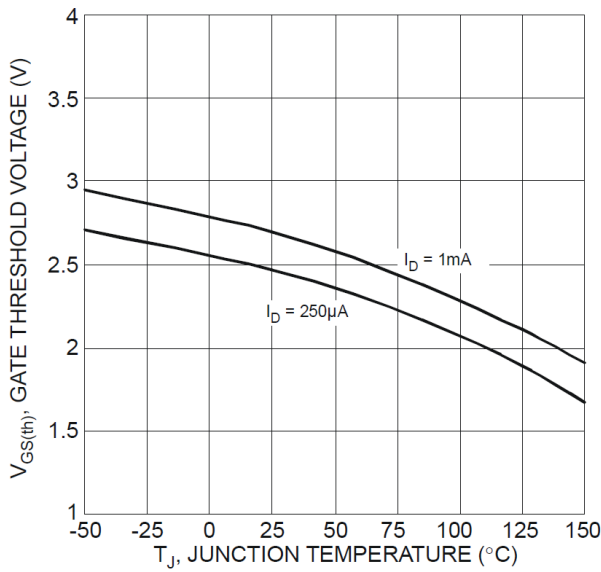
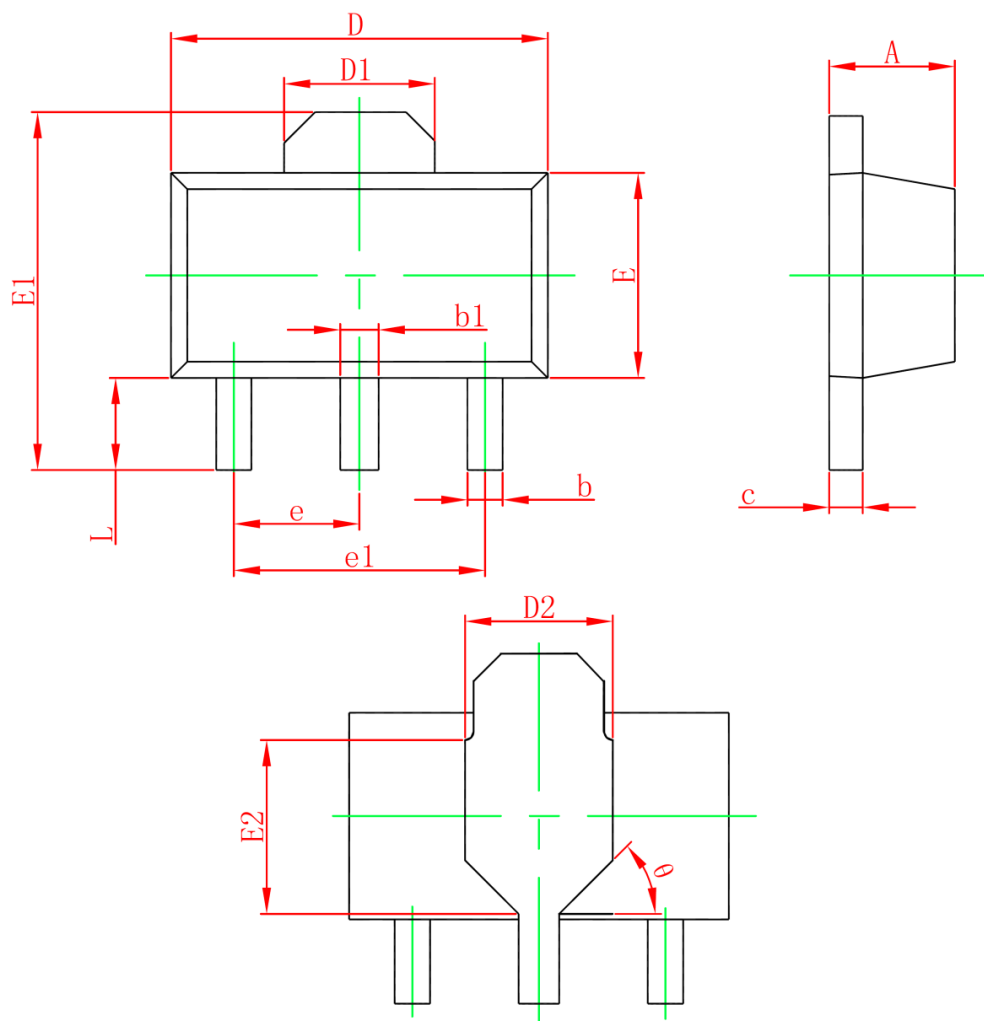


Figure 6 On-Resistance Variation with Temperature





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°	