

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	35mΩ@10V	5.8A
	40mΩ@4.5V	
	50mΩ@2.5V	

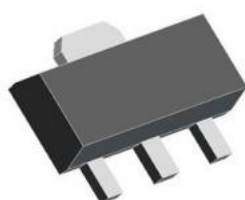
Feature

- High power and current handling capability
- Surface mount package

Application

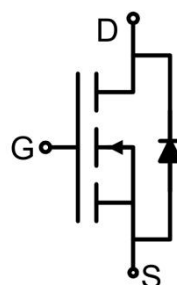
- Battery Switch
- DC-DC Converters

Package

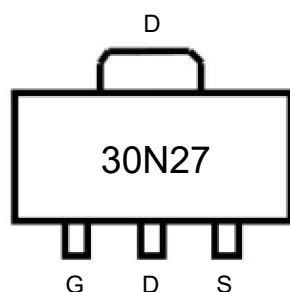


SOT-89

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	5.8	A
Pulsed Drain Current ¹⁾	I_{DM}	23.2	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient ²⁾	$R_{\theta JA}$	83	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

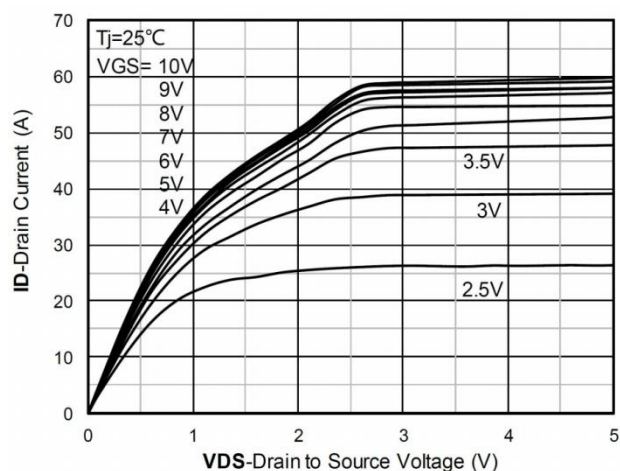
Electrical characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	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} =±12V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.7	1	1.4	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =5.8A		27	35	mΩ
		V _{GS} =4.5V, I _D =5A		30	40	
		V _{GS} =2.5V, I _D =4A		40	50	
Dynamic characteristics ¹⁾						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		745		pF
Output Capacitance	C _{oss}			68		
Reverse Transfer Capacitance	C _{rss}			53		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =3A		18		nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			2.2		
Turn-on delay time	t _{d(on)}	V _{DD} =15V, V _{GS} =10V, I _D =3A R _G =3Ω		5		nS
Turn-on rise time	t _r			11		
Turn-off delay time	t _{d(off)}			25		
Turn-off fall time	t _f			3		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25℃			1.2	V

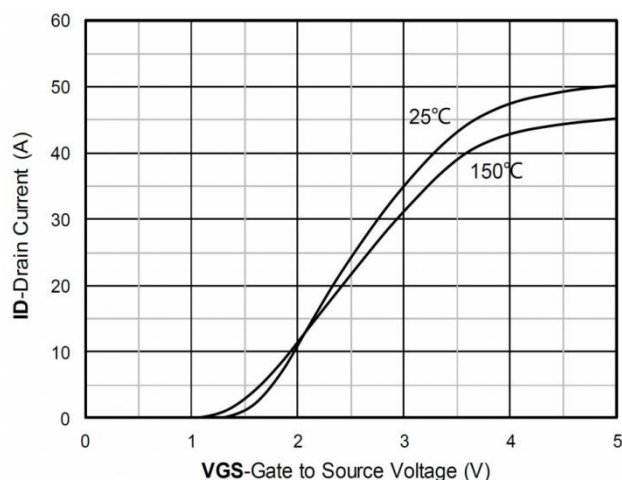
Notes:

1) Guaranteed by design, not subject to production testing.

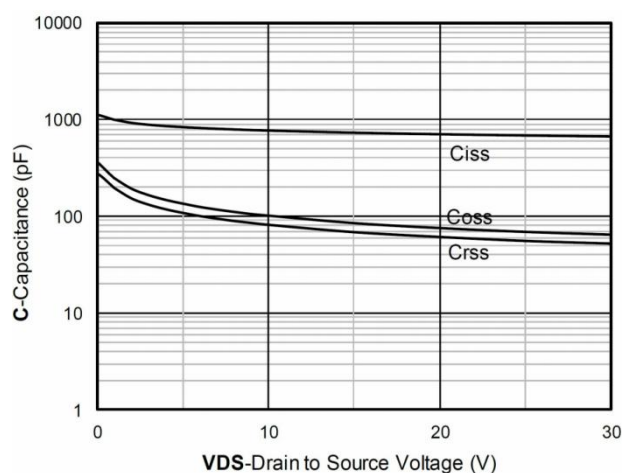
Typical Characteristics



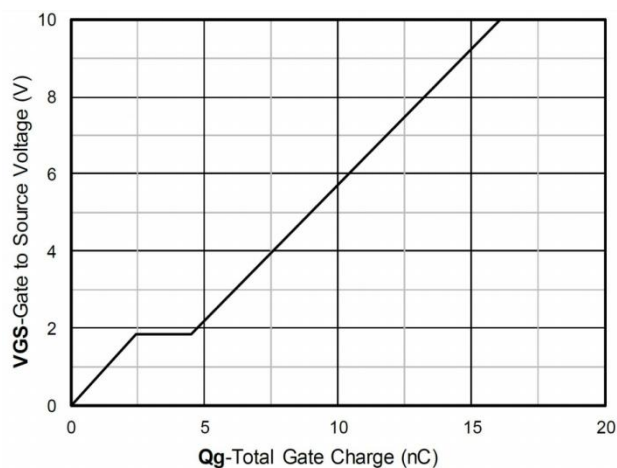
Output Characteristics



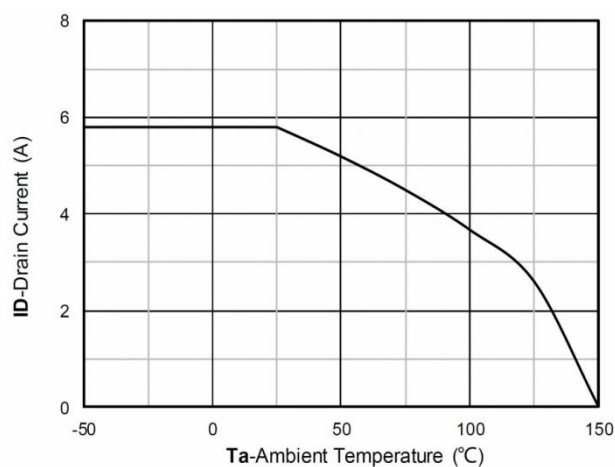
Transfer Characteristics



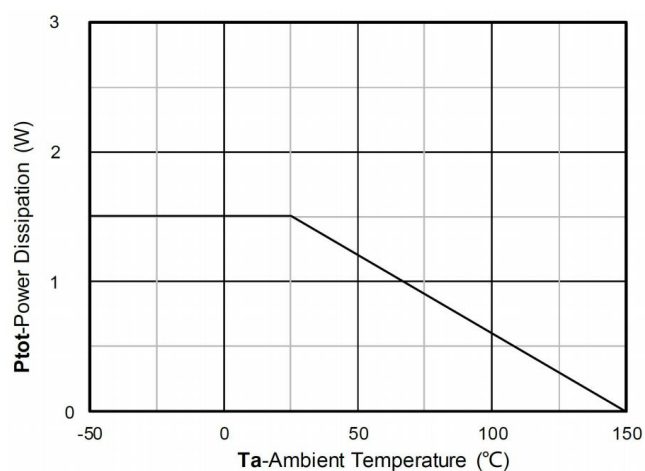
Capacitance Characteristics



Gate Charge

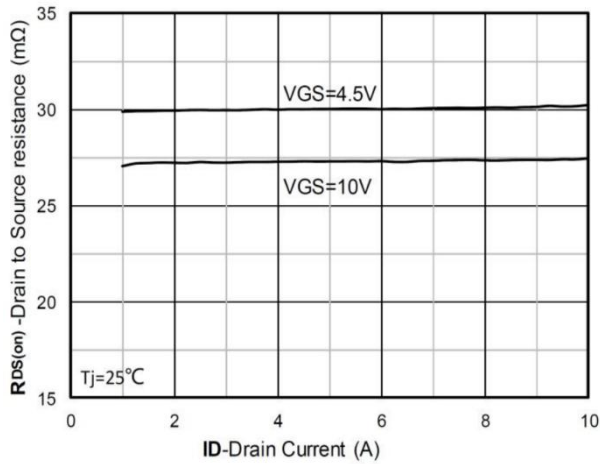


Current dissipation

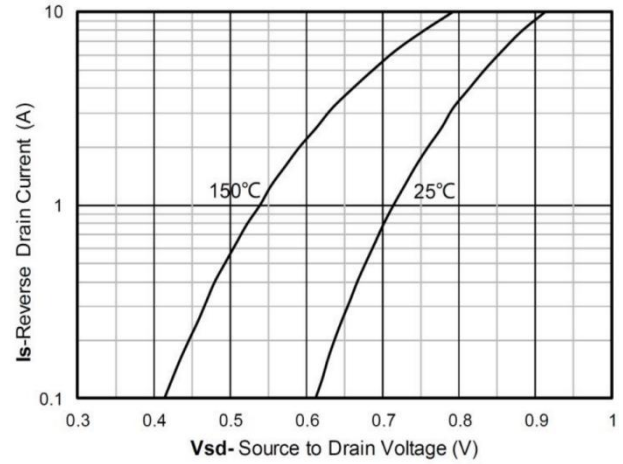


Power dissipation

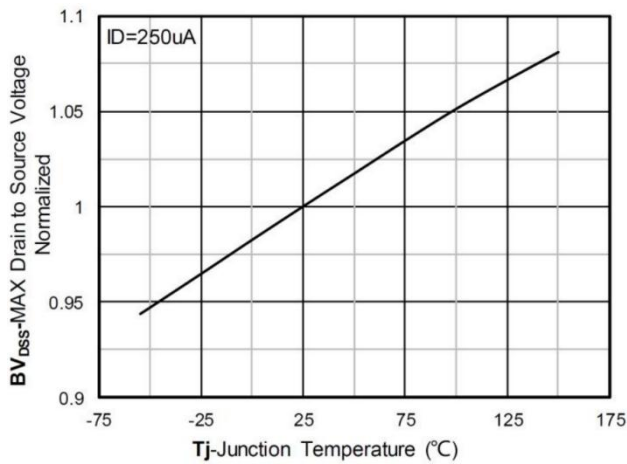
Typical Characteristics



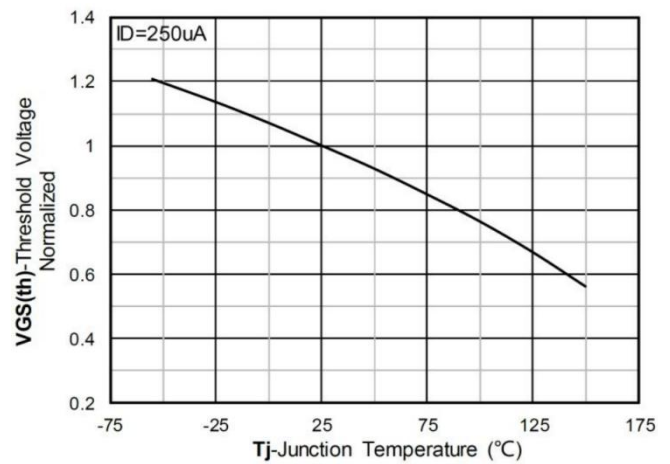
RDS(on) VS Drain Current



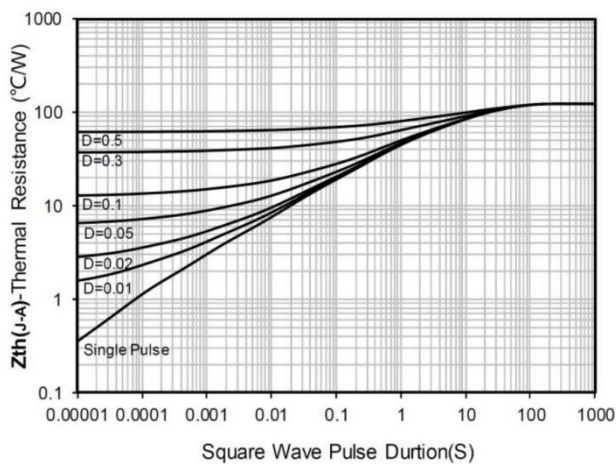
Forward characteristics of reverse diode



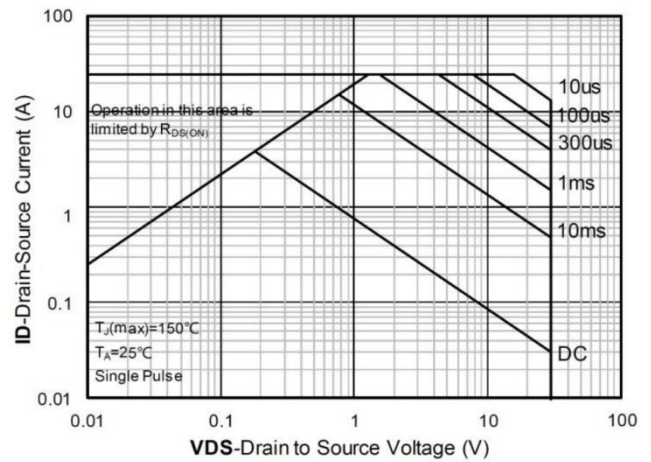
Normalized breakdown voltage



Normalized Threshold voltage

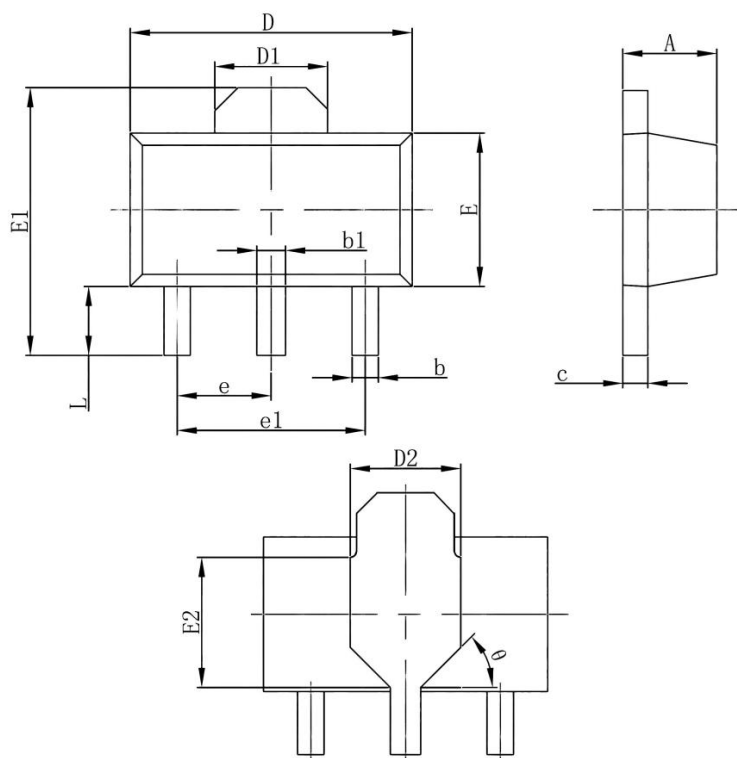


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-89 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.300	4.700	0.169	0.185
D1	1.550 REF.		0.061 REF.	
D2	1.750 REF.		0.069 REF.	
E	2.250	2.650	0.089	0.104
E1	3.910	4.350	0.154	0.171
E2	1.900 REF.		0.075 REF.	
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.800	1.200	0.031	0.047
θ	45°		45°	