

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	120mΩ@-10V	-5A
	140mΩ@-4.5V	

Feature

- High power and current handling capability
- Surface mount package

Application

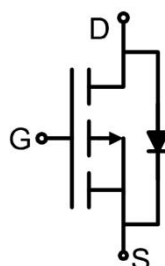
- Battery Switch
- DC-DC Converters

Package

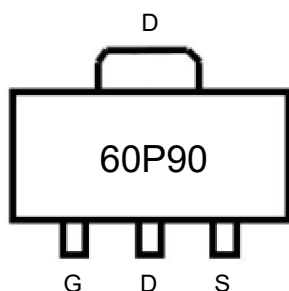


SOT-89

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-5	A
Pulsed Drain Current	I_{DM}	-20	A
Power Dissipation	P_D	1	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	125	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

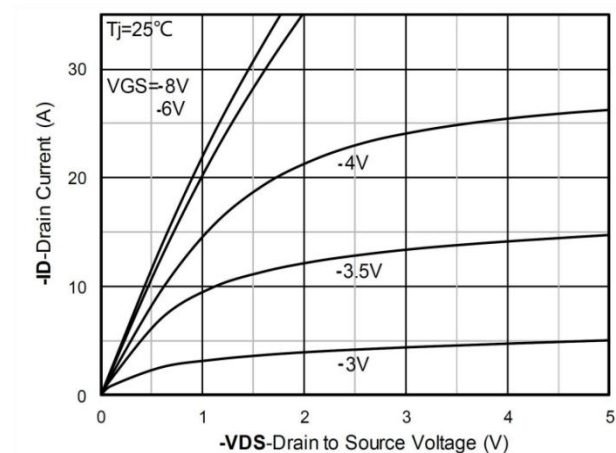
Electrical characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.2	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-3A		90	120	mΩ
		V _{GS} =-4.5V, I _D =-2.5A		110	140	
Dynamic characteristics ¹⁾						
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f =1MHz		960		pF
Output Capacitance	C _{oss}			87		
Reverse Transfer Capacitance	C _{rss}			38		
Total Gate Charge	Q _g	V _{DS} =-30V, V _{GS} =-10V, I _D =-4A		15.7		nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			3.5		
Turn-on delay time	t _{d(on)}	V _{DS} =-30V, V _{GS} =-10V, I _D =-5A R _G =3Ω		9		nS
Turn-on rise time	t _r			11		
Turn-off delay time	t _{d(off)}			25		
Turn-off fall time	t _f			12		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-5	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25℃			-1.2	V

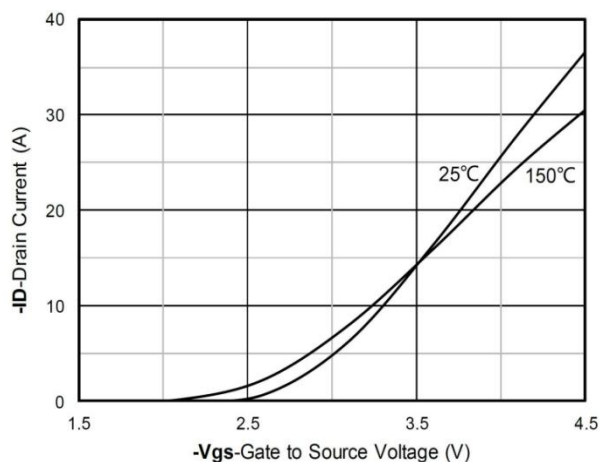
Notes:

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

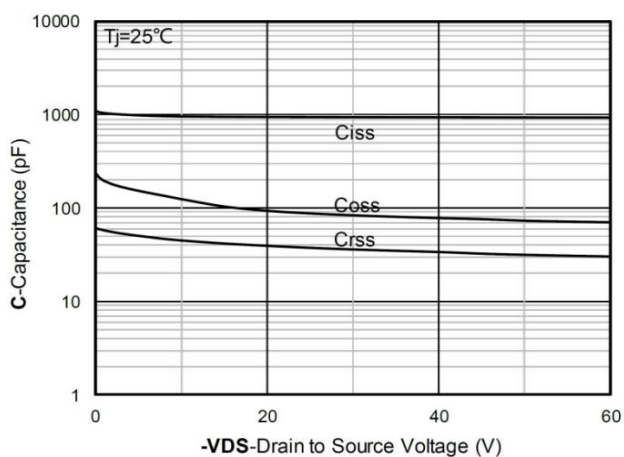
Typical Characteristics



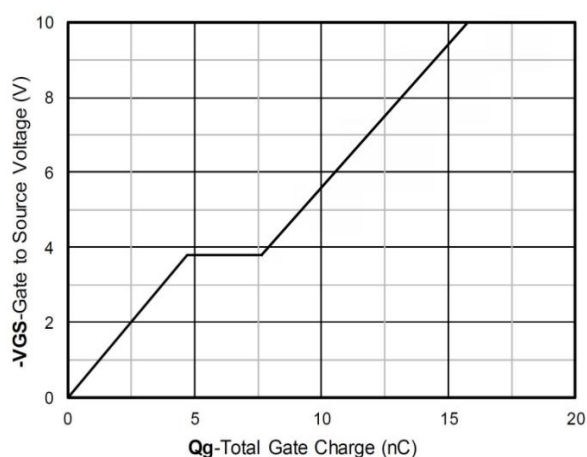
Output Characteristics



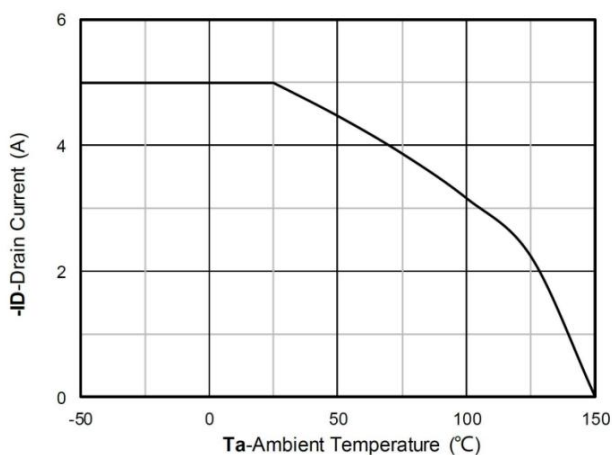
Transfer Characteristics



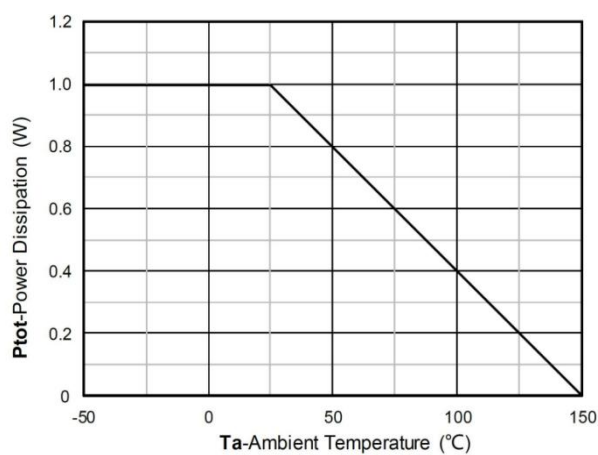
Capacitance Characteristics



Gate Charge

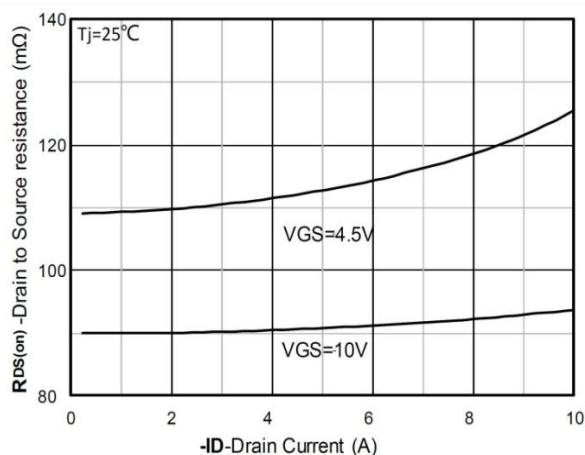


Current dissipation

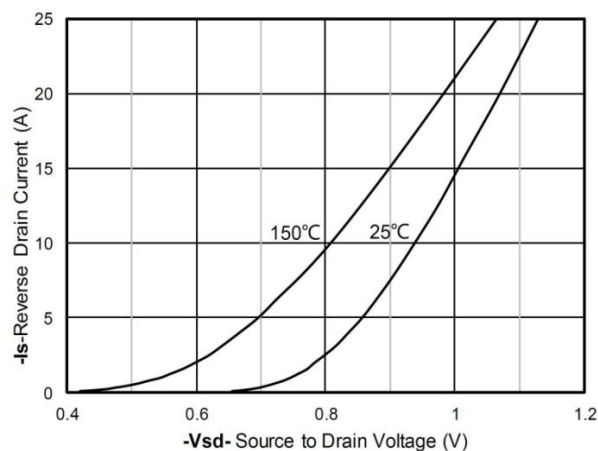


Power dissipation

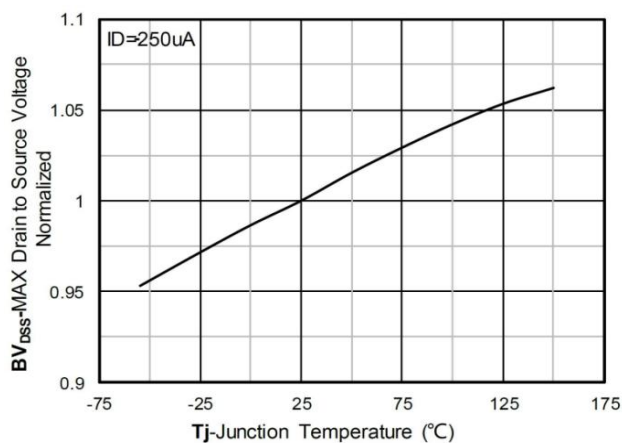
Typical Characteristics



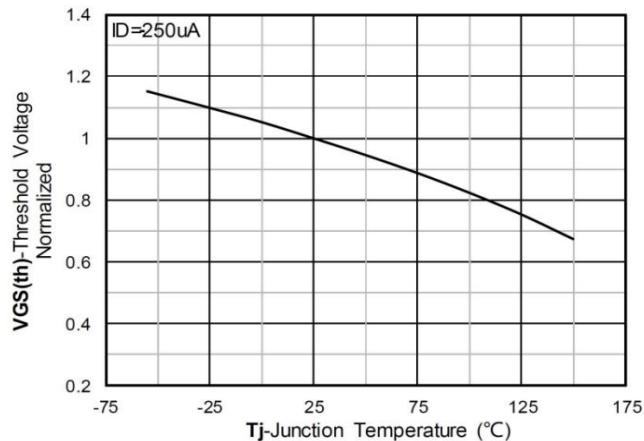
$R_{DS(on)}$ VS Drain Current



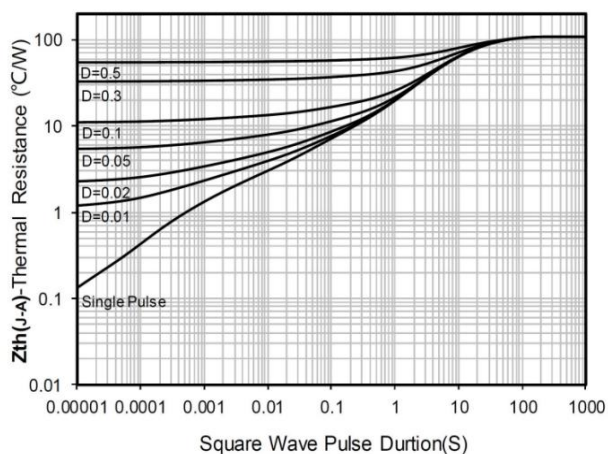
Forward characteristics of reverse diode



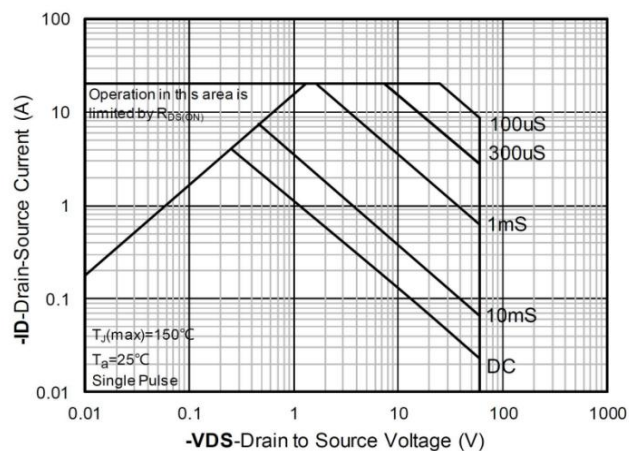
Normalized breakdown voltage



Normalized Threshold voltage

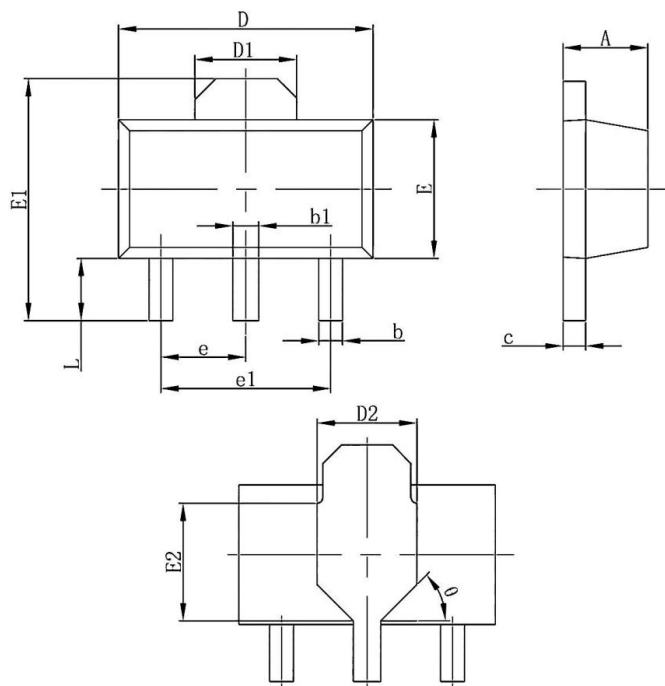


Maximum Transient Thermal Impedance



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	4.400	4.600	0.173	0.182
D1	1.550 REF.		0.061 REF.	
D2	1.750 REF.		0.069 REF.	
E	2.300	2.600	0.091	0.103
E1	3.940	4.250	0.155	0.168
E2	1.900 REF.		0.075 REF.	
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047
θ	45° REF.		45° REF.	