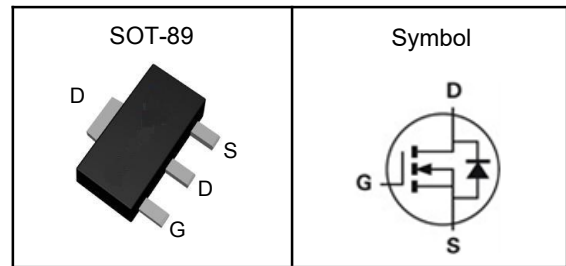


P-Channel Enhancement Mode MOSFET
Features

- Fast switching speed
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested

Applications

- Motor drivers
- DC - DC Converter

Pin Description


V_{DSS}	-60	V
$R_{DS(ON)-Typ}$	95	m Ω
I_D	-2.9	A

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	-60	V
V_{GSS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	-55 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$I_{DM}^{①}$	Pulse Drain Current Tested	-11.6	A
I_D	Continuous Drain Current	$T_A=25^\circ\text{C}$	A
I_D	Continuous Drain Current	$T_A=70^\circ\text{C}$	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	W
E_{AS}	Avalanche Energy, Single pulse	12	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	$^\circ\text{C}/\text{W}$

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150°C .

Note ③ : Surface Mounted on 1in^2 FR-4 board with 1oz.



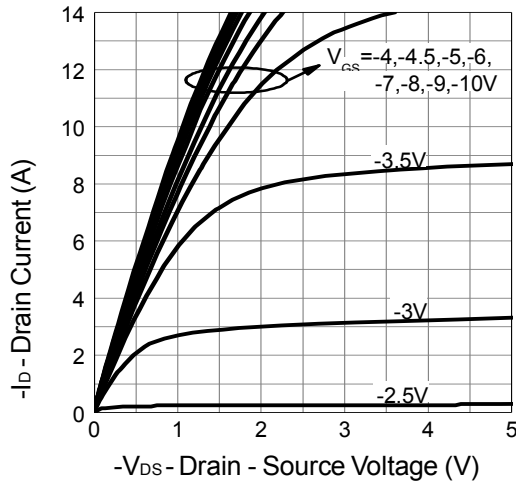
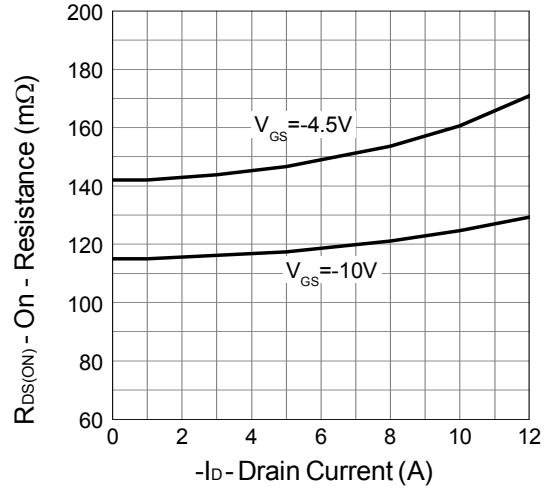
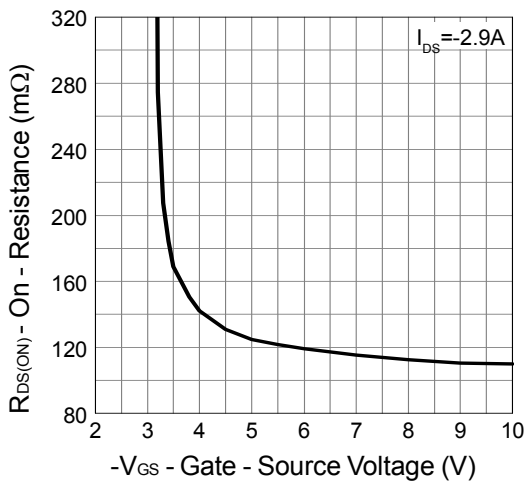
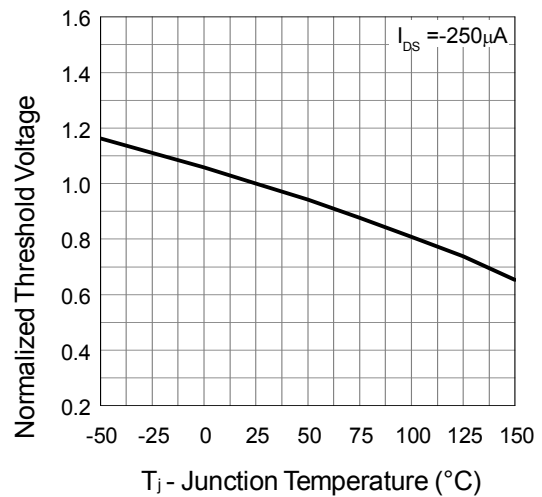
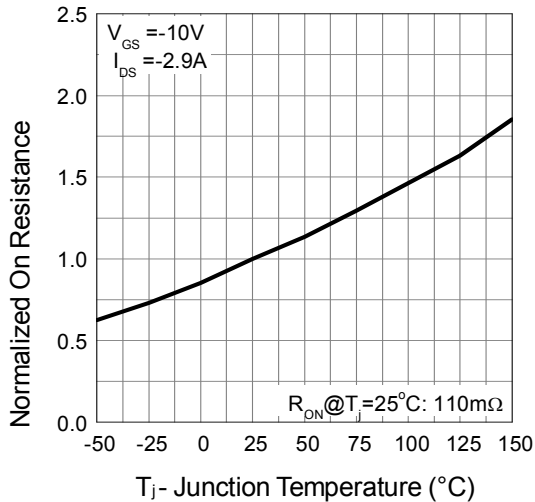
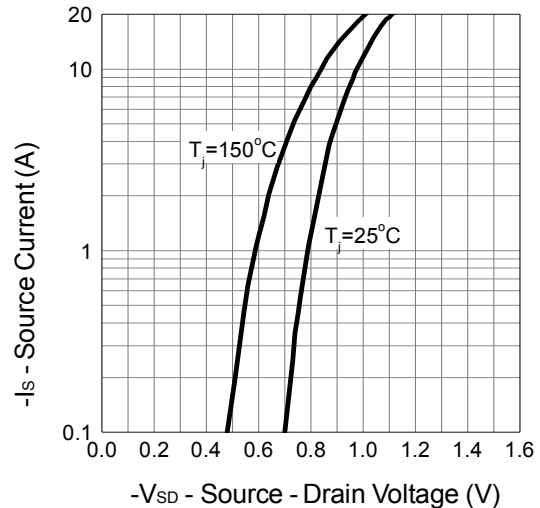
P-Channel Enhancement Mode MOSFET

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-48V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.2	---	-2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_D=-2.9A$	---	95	115	m Ω
		$V_{GS}=-4.5V, I_D=-2.9A$	---	110	145	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-30V, \text{Freq.}=1\text{MHz}$	---	430	---	pF
C_{oss}	Output Capacitance		---	41	---	
C_{rSS}	Reverse Transfer Capacitance		---	25	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{GS}=-10V, V_{DS}=-30V, I_D=-1A, R_G=6\Omega$	---	8.5	---	nS
T_r	Turn-on Rise Time		---	5.8	---	
$T_{d(off)}$	Turn-off Delay Time		---	36	---	
T_f	Turn-off Fall Time		---	24	---	
Q_g	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-30V, I_D=-2.9A$	---	11	---	nC
Q_{gs}	Gate-Source Charge		---	1.4	---	
Q_{gd}	Gate-Drain Charge		---	2.4	---	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	$I_S=-1A, V_{GS}=0V$	---	---	-1.2	V
t_{rr}	Reverse Recovery Time	$I_F=2.9A, dI_F/dt=100A/\mu s$	---	20	---	nS
Q_{rr}	Reverse Recovery Charge		---	19	---	nC

Note ④: Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

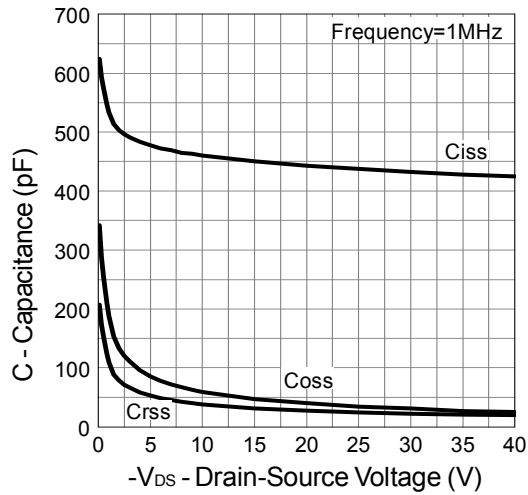
Note ⑤: Guaranteed by design, not subject to production testing.

P-Channel Enhancement Mode MOSFET
Typical Characteristics
Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage

Drain-Source On Resistance

Source-Drain Diode Forward


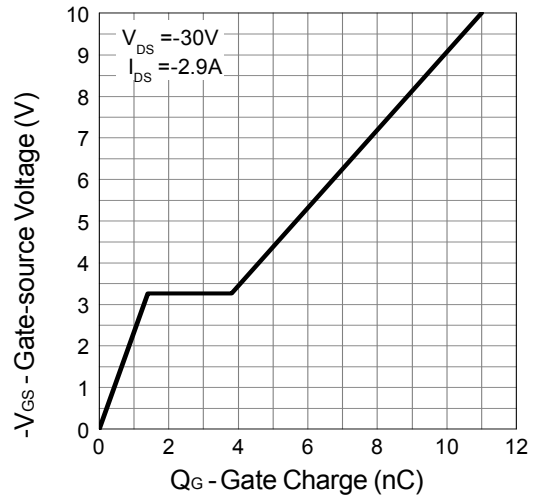


P-Channel Enhancement Mode MOSFET

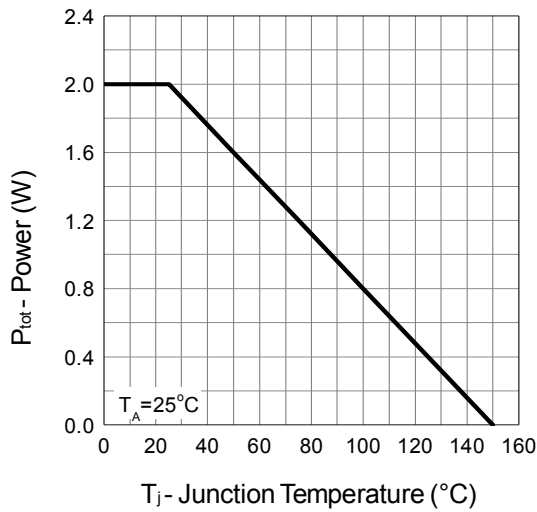
Capacitance



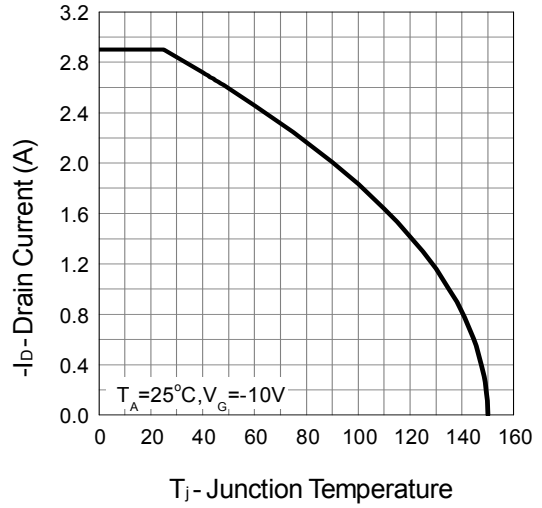
Gate Charge



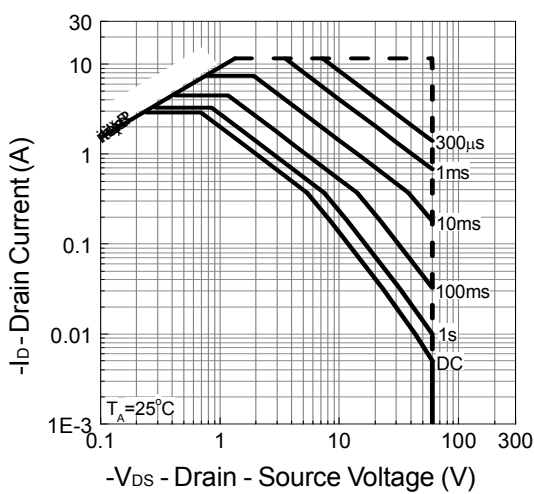
Power Dissipation



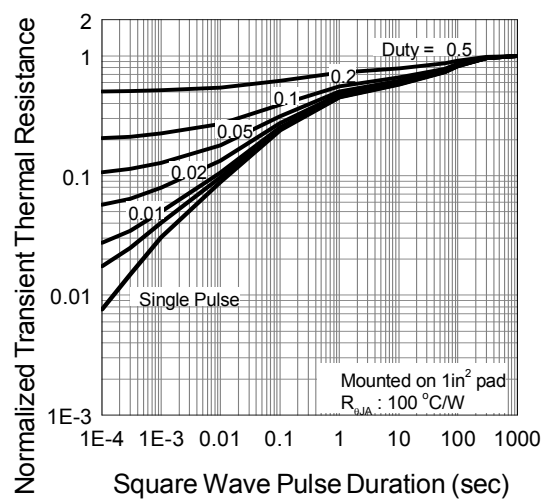
Drain Current

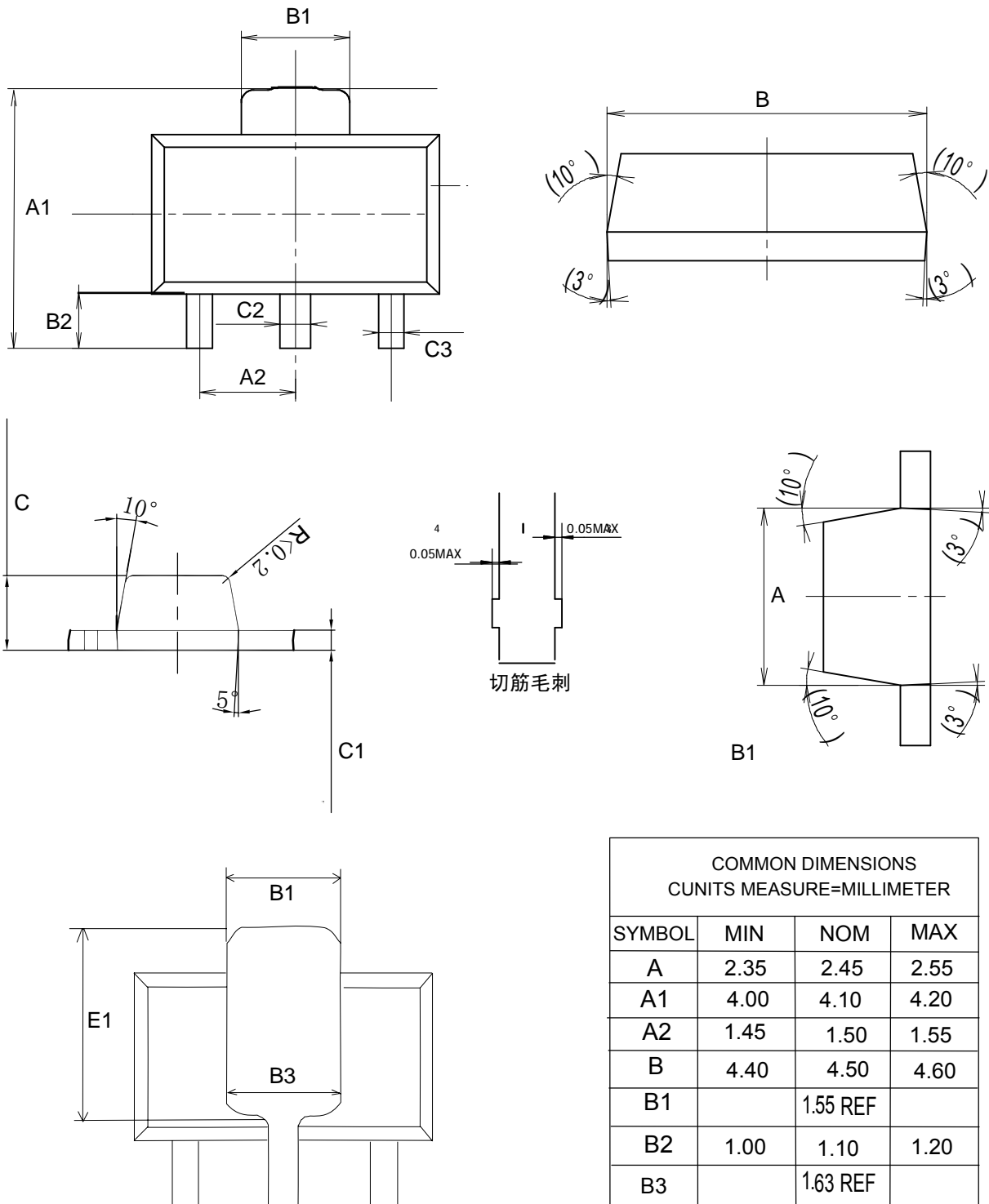


Safe Operation Area



Thermal Transient Impedance



P-Channel Enhancement Mode MOSFET
SOT-89 Package Outline Data


COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	2.35	2.45	2.55
A1	4.00	4.10	4.20
A2	1.45	1.50	1.55
B	4.40	4.50	4.60
B1		1.55 REF	
B2	1.00	1.10	1.20
B3		1.63 REF	
C	1.45	1.50	1.55
C1	0.39	0.40	0.41
C2	0.4	0.48	0.55
C3	0.35	0.4	0.45
E1	2.65	2.75	2.85