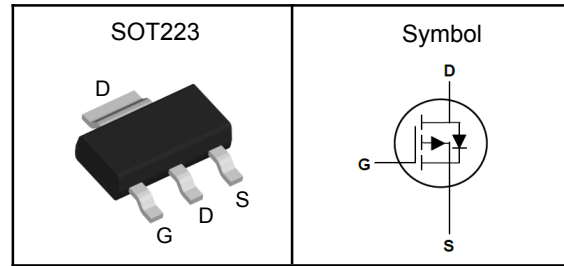


P-Channel Enhancement Mode MOSFET
Features

- Fast switching speed
- Reliable and Rugged
- ROHS Compliant
- 100% UIS and Rg Tested

Applications

- Motor drivers
- DC - DC Converter

Pin Description


V_{DSS}	-100	V
$R_{DS(ON)-Typ}$	185	m Ω
I_D	-2.6	A

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

Symbol	Parameter	P-Channel	Unit
V_{DSS}	Drain-Source Voltage	-100	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	-10.4	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	$T_A=25^\circ\text{C}$	W
E_{AS}	Avalanche Energy, Single pulse	12	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹ (Max)	50	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	15	$^\circ\text{C}/\text{W}$

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

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150 $^\circ\text{C}$.

Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.



P-Channel Enhancement Mode MOSFET

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

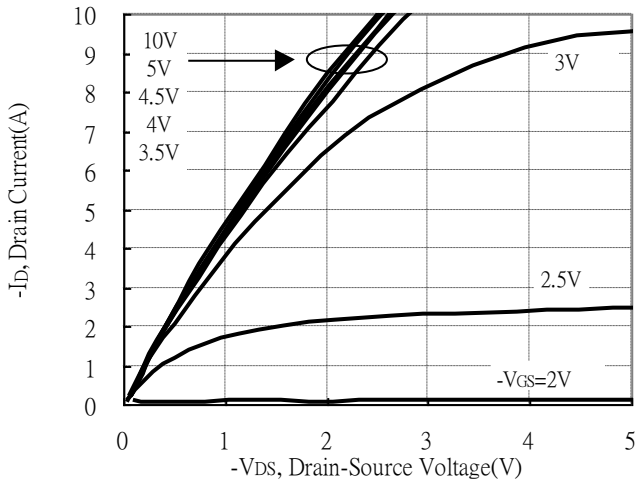
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-80V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	---	-3	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_D=-2A$	---	185	225	m Ω
		$V_{GS}=-4.5V, I_D=-1A$	---	190	245	m Ω
Dynamic Characteristics ^⑤						
gfs	Forward Transconductance	$V_{DS}=-5V, I_D=-2A$	---	6	---	S
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-25V, \text{Freq.}=1\text{MHz}$	---	1410	---	pF
C_{oss}	Output Capacitance		---	50	---	
C_{rss}	Reverse Transfer Capacitance		---	40	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DS}=-50V, V_{GS}=-10V, R_G=1\Omega, I_D=-2A$	---	6.6	---	nS
T_r	Turn-on Rise Time		---	18	---	
$T_{d(off)}$	Turn-off Delay Time		---	120	---	
T_f	Turn-off Fall Time		---	46	---	
Q_g	Total Gate Charge	$V_{DS}=-80V, V_{GS}=-10V, I_D=-2A$	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	3.4	---	
Q_{gd}	Gate-Drain Charge		---	3.8	---	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	$I_S=-2A, V_{GS}=0V$	---	---	-1.3	V
I_S	Continuous Source Current ¹		---	---	-2.6	A
t_{rr}	Reverse Recovery Time	$V_{GS}=0V, I_S=-2A, di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	---	18	---	nS
Q_{rr}	Reverse Recovery Charge		---	15	---	nC

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

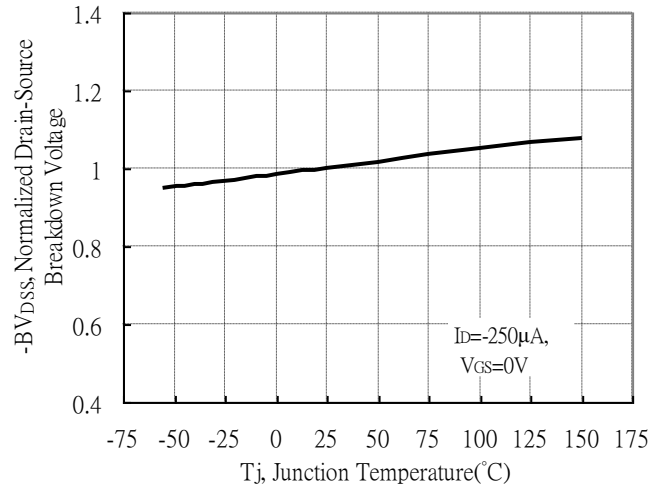
Note ⑤ : Guaranteed by design, not subject to production testing.

P-Channel Enhancement Mode MOSFET
Typical Characteristics

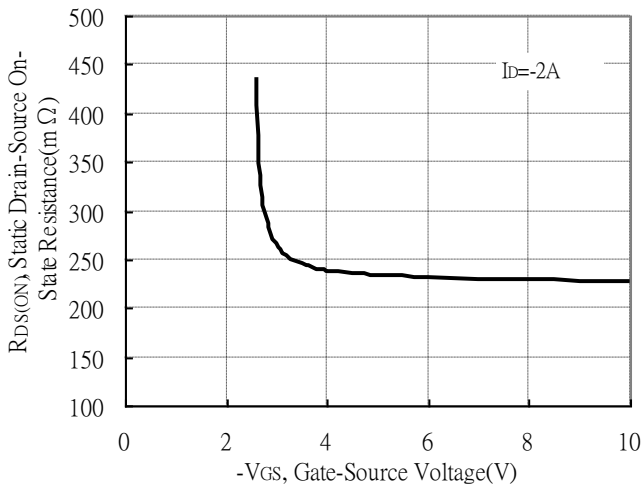
Typical Output Characteristics



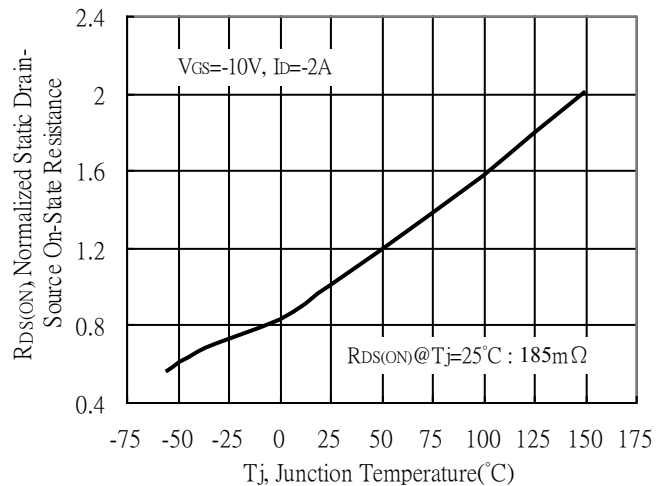
Brekdown Voltage vs Ambient Temperature



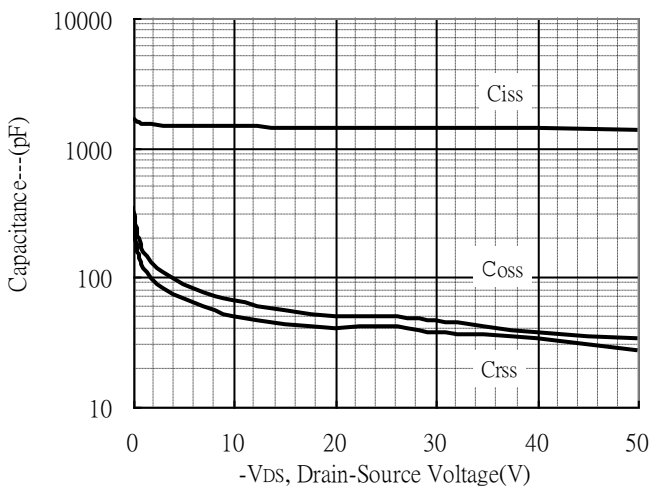
Static Drain-Source On-State Resistance vs Gate-Source Voltage



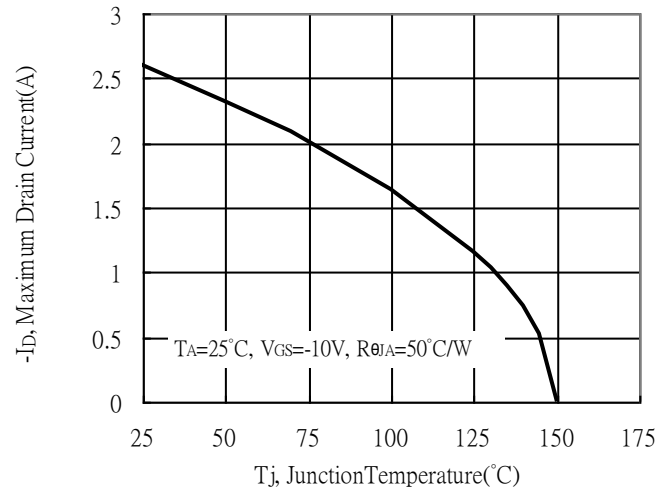
Drain-Source On-State Resistance vs Junction Temperature



Capacitance vs Drain-to-Source Voltage



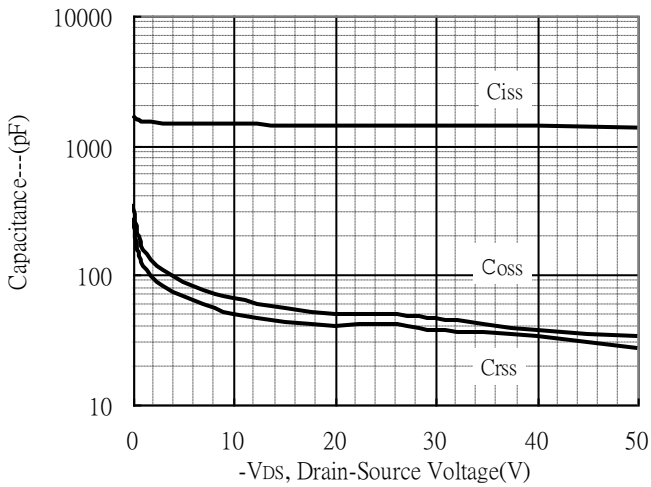
Maximum Drain Current vs Junction Temperature



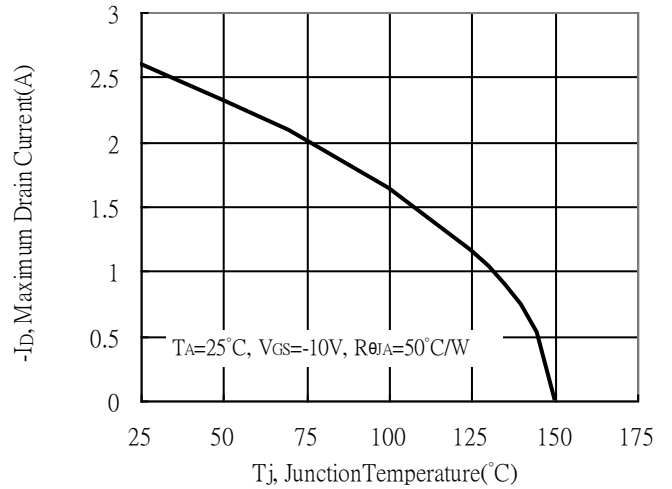


P-Channel Enhancement Mode MOSFET

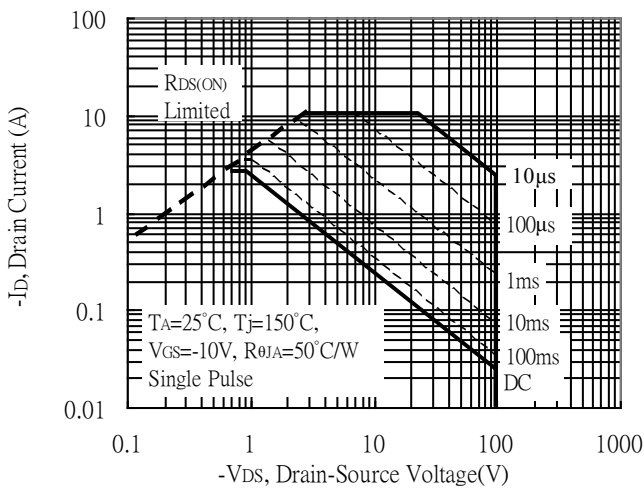
Capacitance vs Drain-to-Source Voltage



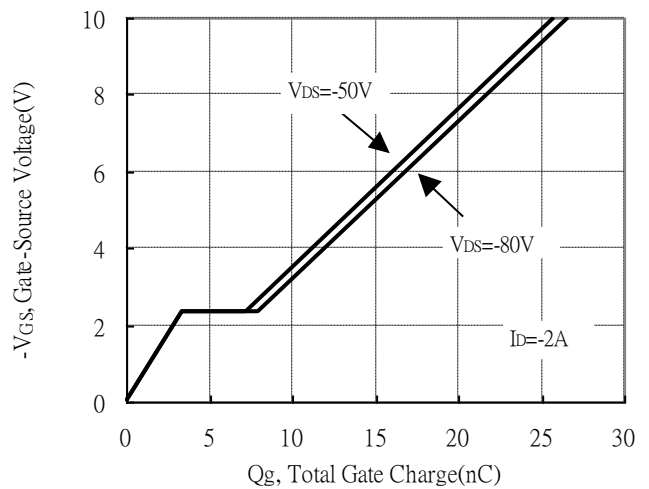
Maximum Drain Current vs Junction Temperature



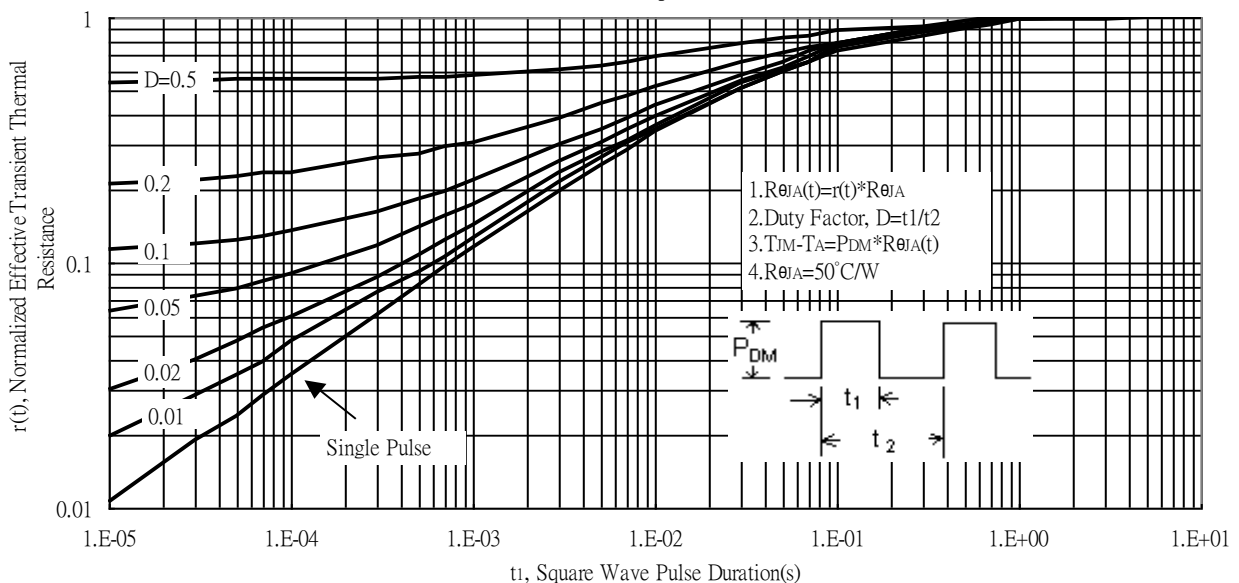
Maximum Safe Operating Area

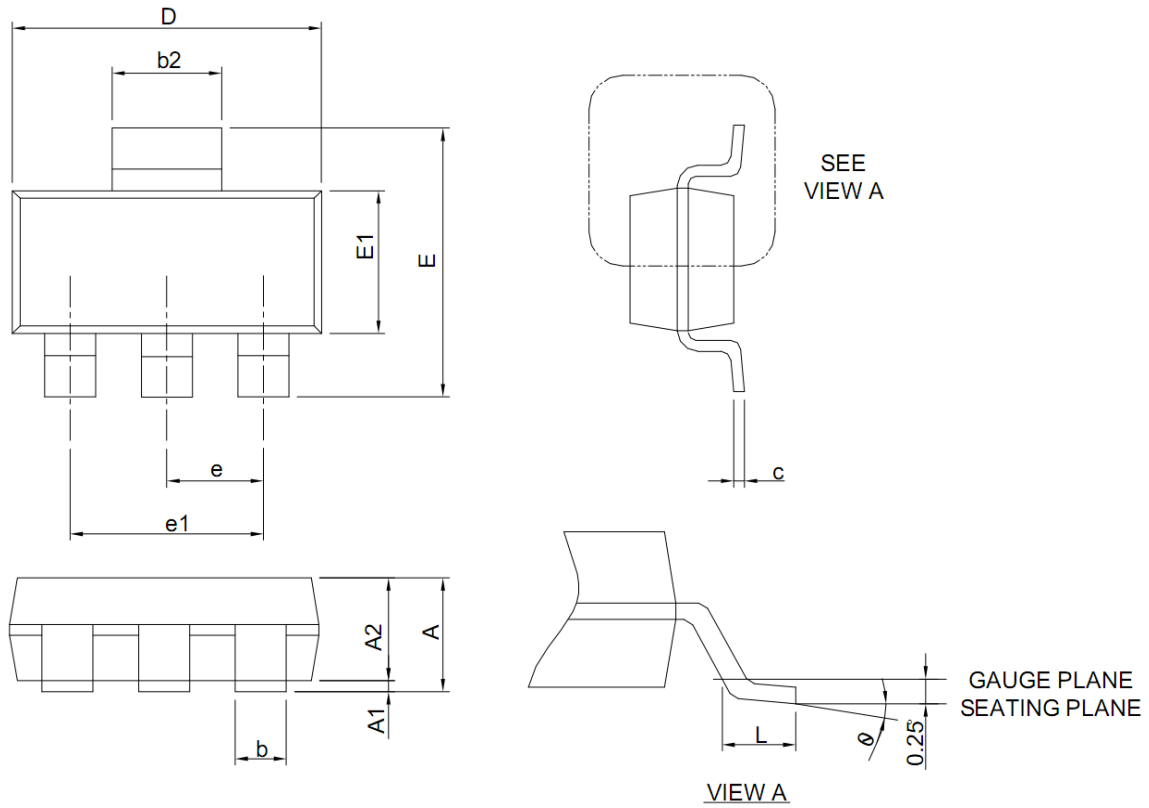


Gate Charge Characteristics



Transient Thermal Response Curves



P-Channel Enhancement Mode MOSFET
SOT223 Package Outline Data


Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	1.50	1.65	1.80	A1	0.02	0.06	0.10
A2	1.50	1.60	1.70	b	0.66	0.72	0.80
b2	2.90	3.00	3.10	c	0.23	0.30	0.35
D	6.30	6.50	6.70	E	6.70	7.00	7.30
E1	3.30	3.50	3.70	e	2.30 REF		
e1	4.60 REF			L	0.75	--	1.15
θ	0°	--	10°				