

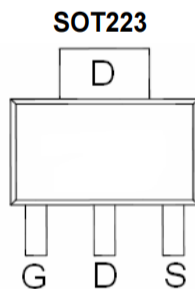
GENERAL FEATURES

- $V_{DS} = 200V$
- $I_D = 1.0 A$ @ $V_{GS} = 10V$
- $R_{DS(ON)} \leq 1.35\Omega$ @ $V_{GS} = 10V$
- SOT-223 package.

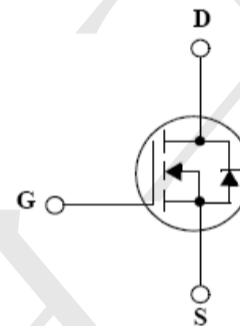
Application

- Power Supply
- PFC
- LED TV

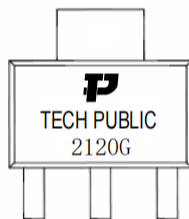
Package and Pin Configuration



Circuit diagram



Marking:



ABSOLUTE MAXIMUM RATINGS $T_A = 25^\circ C$ unless otherwise noted

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	200	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ C$	I_D	1.0	A
	$T_C = 100^\circ C$		0.54	A
Pulsed Drain Current ⁽¹⁾		I_{DM}	3.4	A
Power Dissipation	$T_C = 25^\circ C$	P_D	2.1	W
	Derate above $25^\circ C$		0.017	W/°C
Peak Diode Recovery dv/dt ⁽³⁾		Dv/dt	5.5	V/ns
Repetitive Pulse Avalanche Energy ⁽⁴⁾		E_{AR}	0.21	mJ
Avalanche current ⁽¹⁾		I_{AR}	0.85	A
Single Pulse Avalanche Energy ⁽⁴⁾		E_{AS}	52	mJ
Junction and Storage Temperature Range		T_J, T_{stg}	-55~150	°C

Thermal Characteristics

Characteristics	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Ambient *	$R_{\theta JA}$	60	°C/W

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 250\mu A, V_{GS} = 0V$	200	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.6	2.0	
Drain Cut-Off Current	I_{DSS}	$V_{DS} = 200V, V_{GS} = 0V$	-	-	1	μA
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	100	nA
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 0.425A$	-	0.9	1.35	Ω
Forward Transconductance	g_{fs}	$V_{DS} = 30V, I_D = 0.425A$	-	1.3	-	S
Dynamic Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 160V, I_D = 3.8A, V_{GS} = 5V$	-	3.2	-	nC
Gate-Source Charge	Q_{gs}		-	0.64	-	
Gate-Drain Charge	Q_{gd}		-	1.6	-	
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz$	-	148	-	pF
Reverse Transfer Capacitance	C_{rss}		-	11.3	-	
Output Capacitance	C_{oss}		-	42.7	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 5V, V_{DS} = 100V, I_D = 3.8A, R_G = 25\Omega$	-	6	-	ns
Rise Time	t_r		-	38	-	
Turn-Off Delay Time	$t_{d(off)}$		-	11	-	
Fall Time	t_f		-	13	-	
Drain-Source Body Diode Characteristics						
Maximum Continuous Drain to Source Diode Forward Current	I_S		-	1.0	-	A
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 0.85A, V_{GS} = 0V$	-	-	1.5	V
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 3.8A, dI/dt = 100A/\mu s^{(3)}$	-	90	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	0.24	-	μC

Typical Electrical and Thermal Characteristics

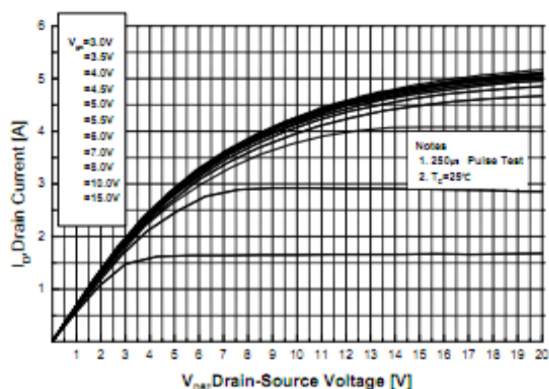


Fig.1 On-Region Characteristics

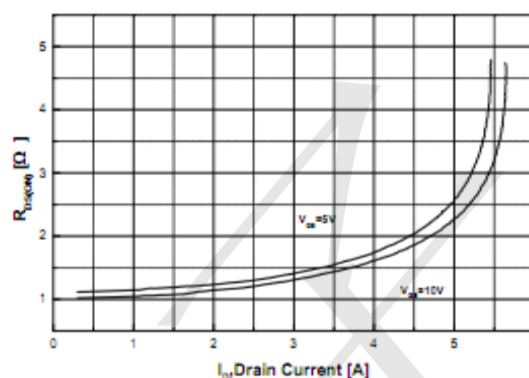


Fig.2 On-Resistance Variation with Drain Current and Gate Voltage

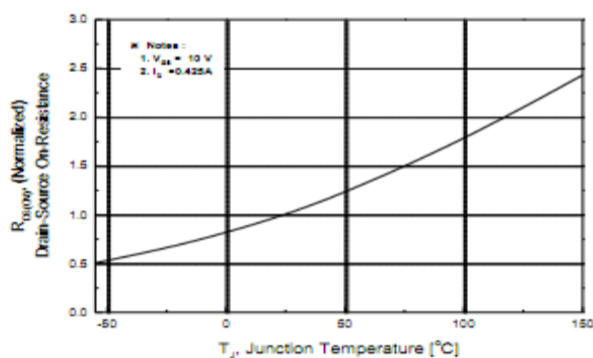


Fig.3 On-Resistance Variation with Temperature

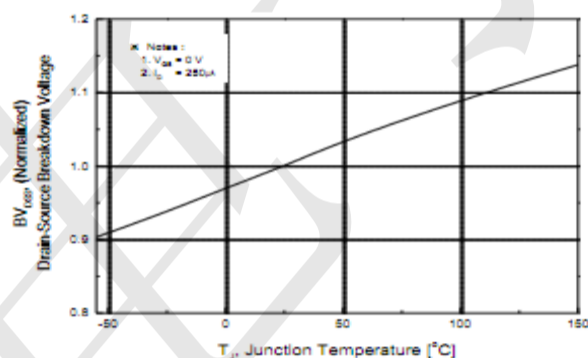


Fig.4 Breakdown Voltage Variation vs. Temperature

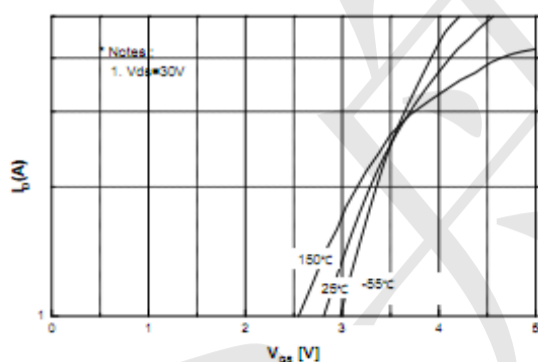


Fig.5 Transfer Characteristics

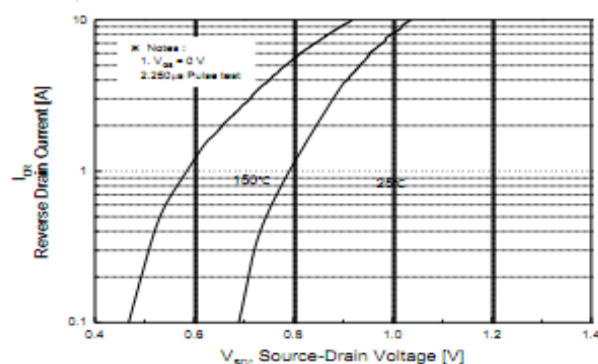
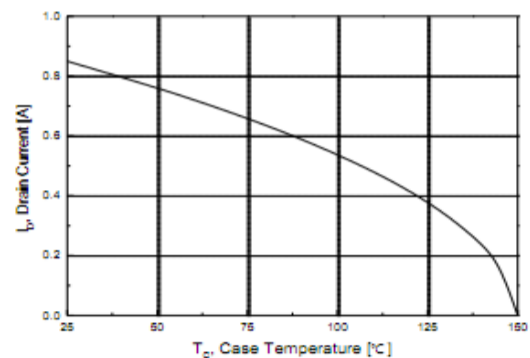
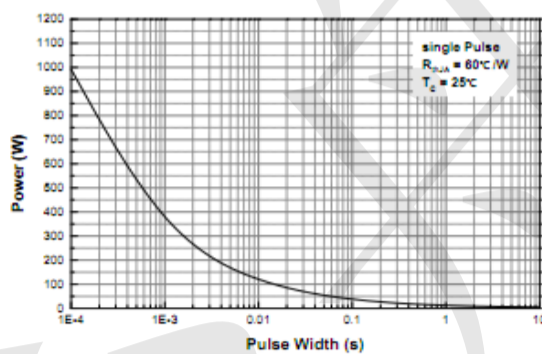
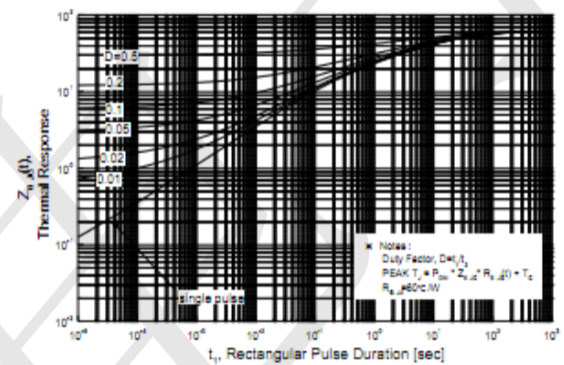
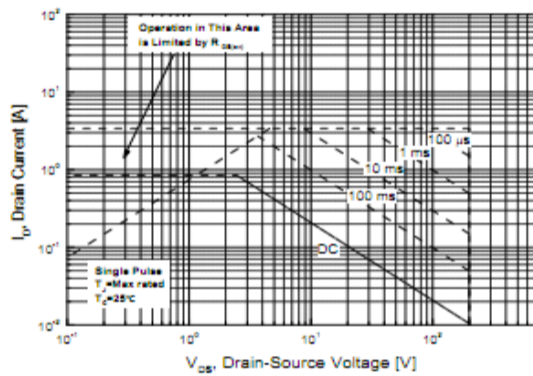
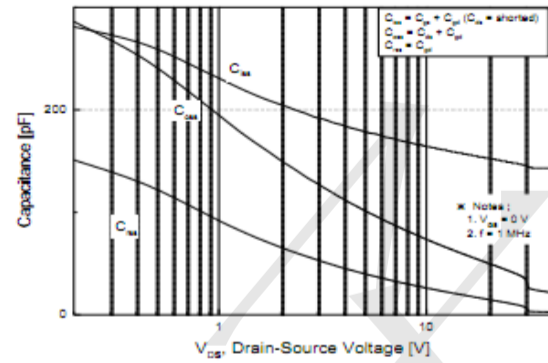
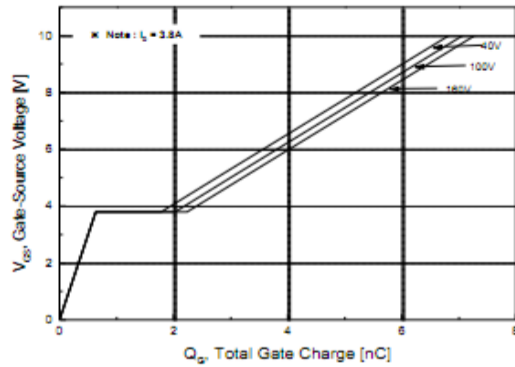
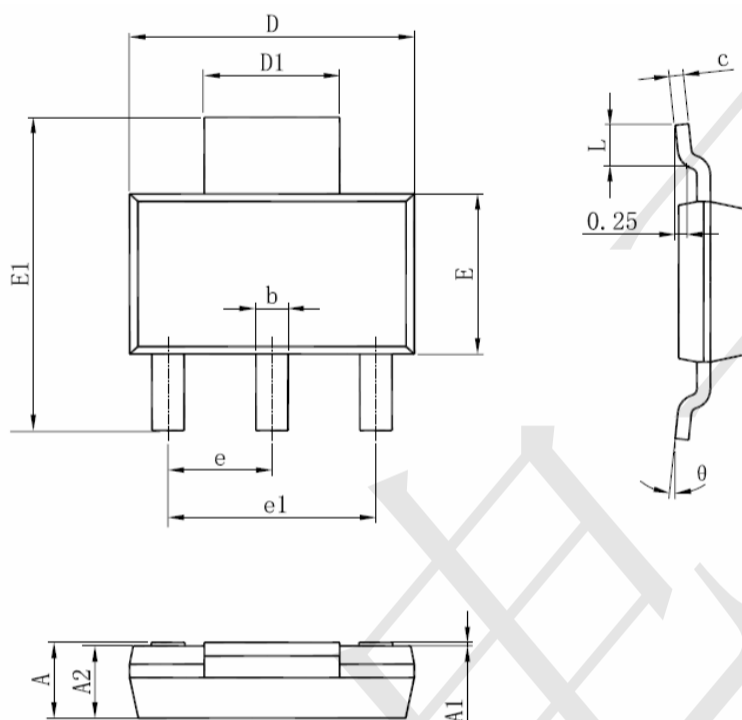


Fig.6 Body Diode Forward Voltage Variation with Source Current and Temperature



SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°