

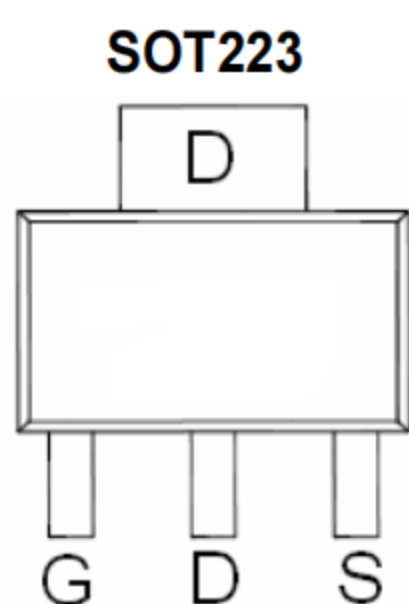
### GENERAL FEATURES

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

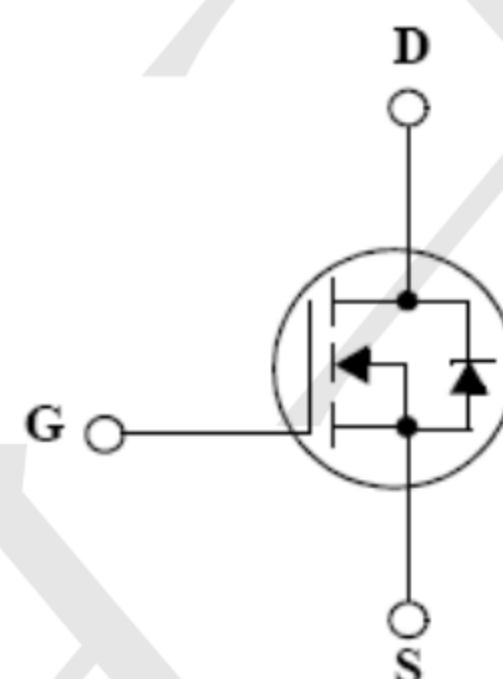
### Application

- Power Supply
- PFC
- LED TV

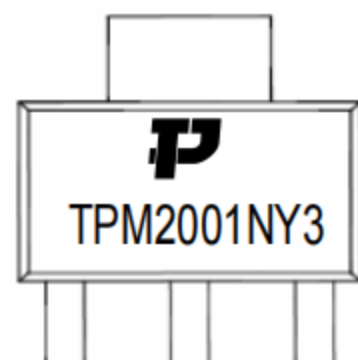
### Package and Pin Configuration



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

### Thermal Characteristics

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

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

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

Typical Electrical and Thermal Characteristics

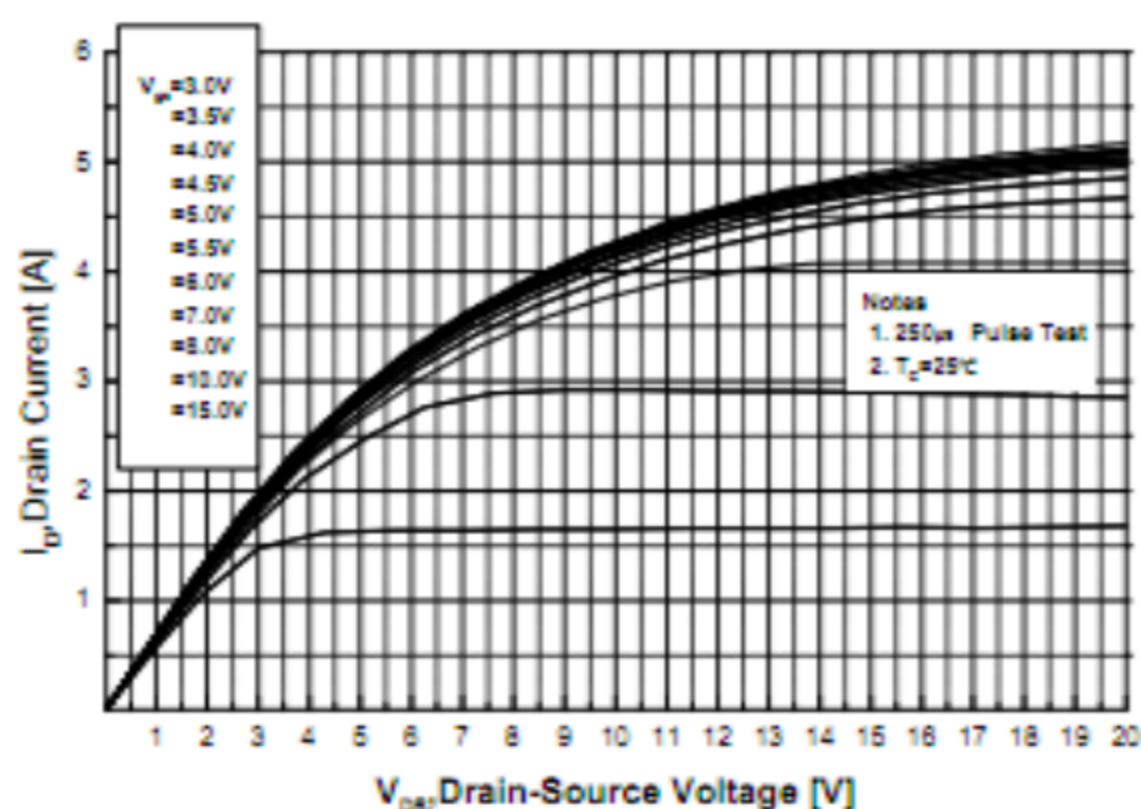


Fig.1 On-Region Characteristics

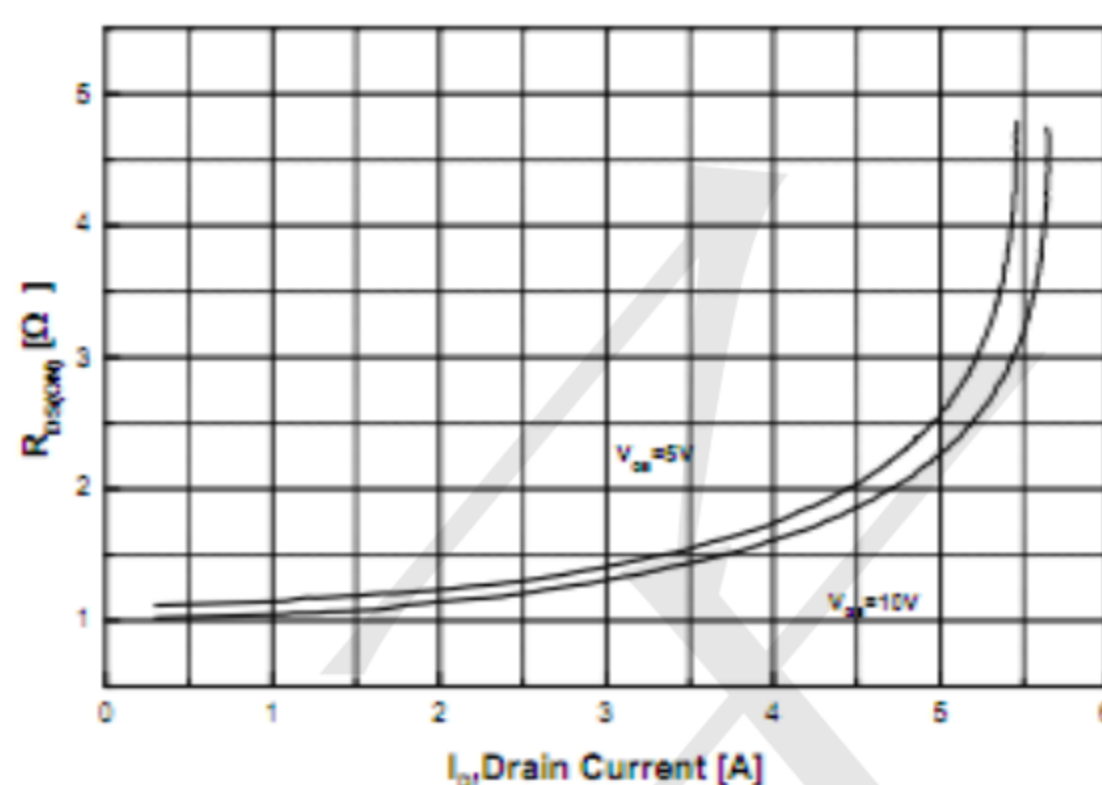


Fig.2 On-Resistance Variation with Drain Current and Gate Voltage

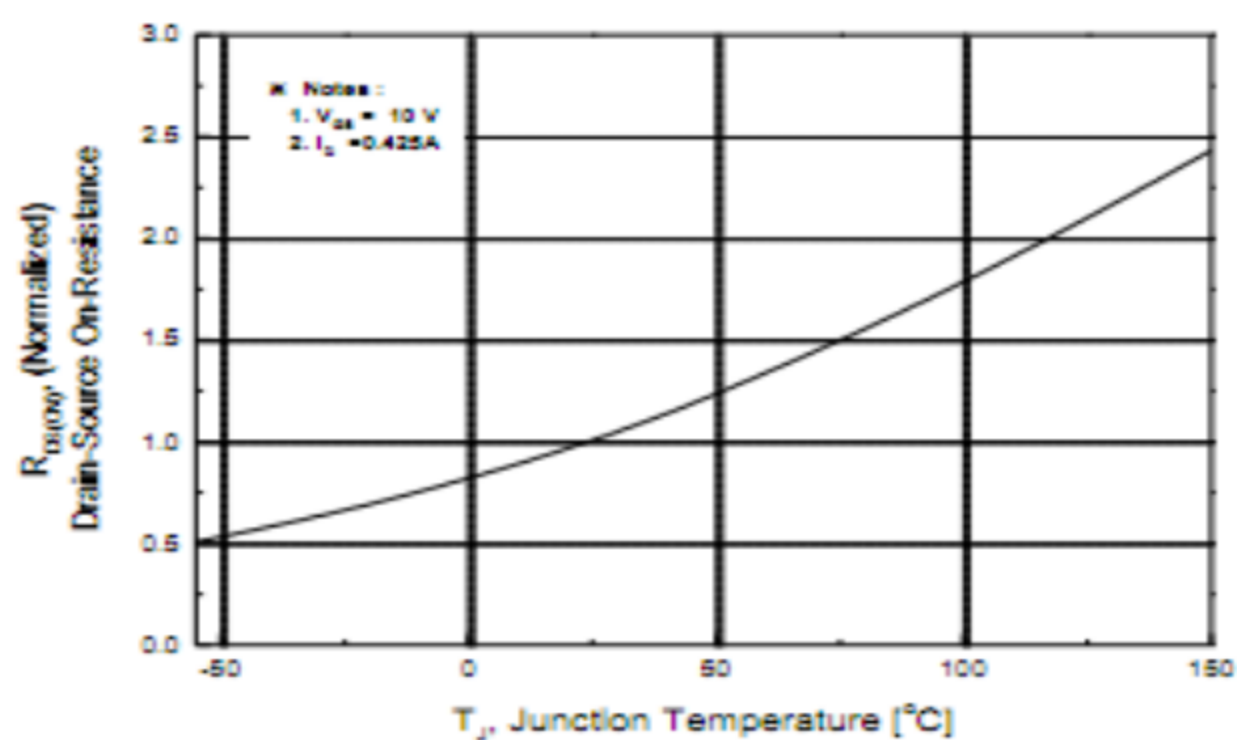


Fig.3 On-Resistance Variation with Temperature

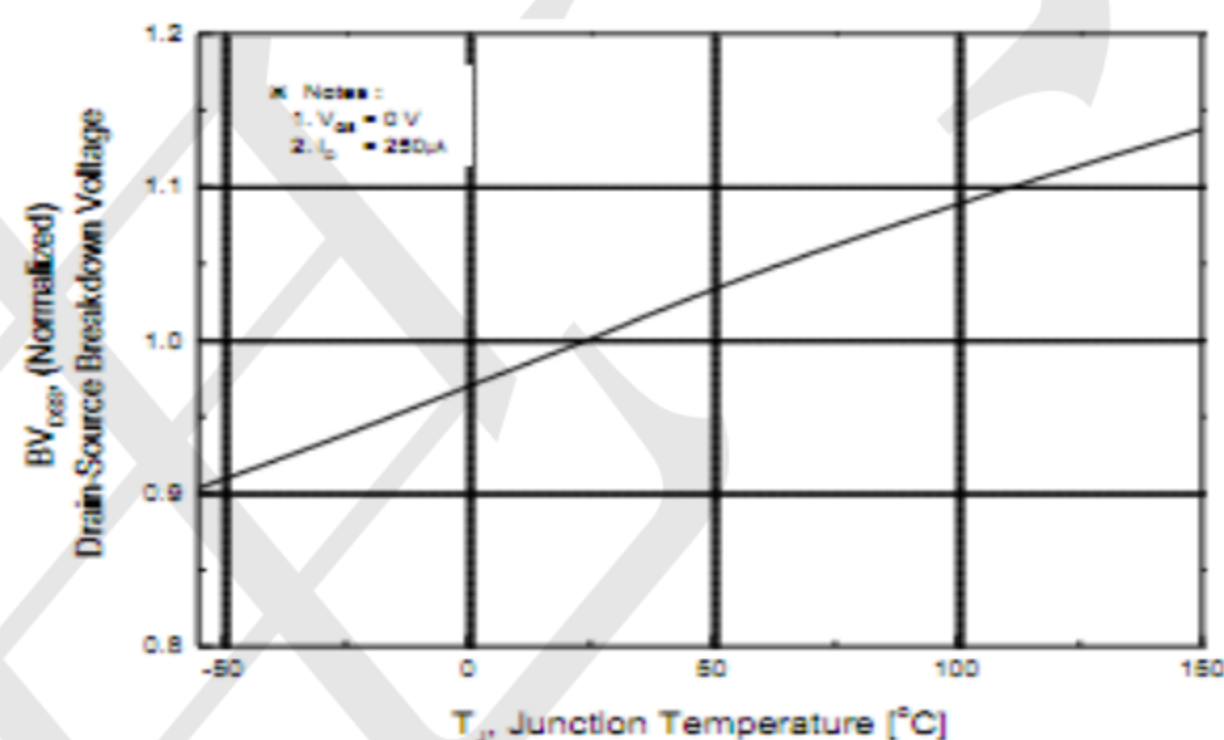


Fig.4 Breakdown Voltage Variation vs. Temperature

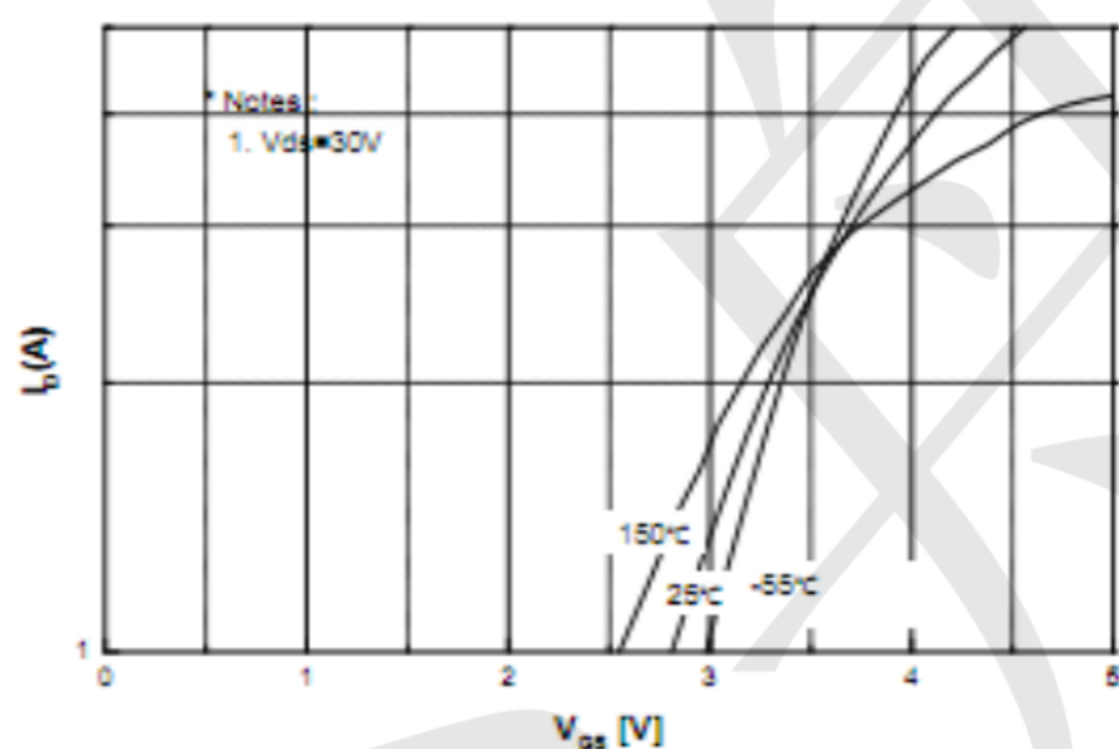


Fig.5 Transfer Characteristics

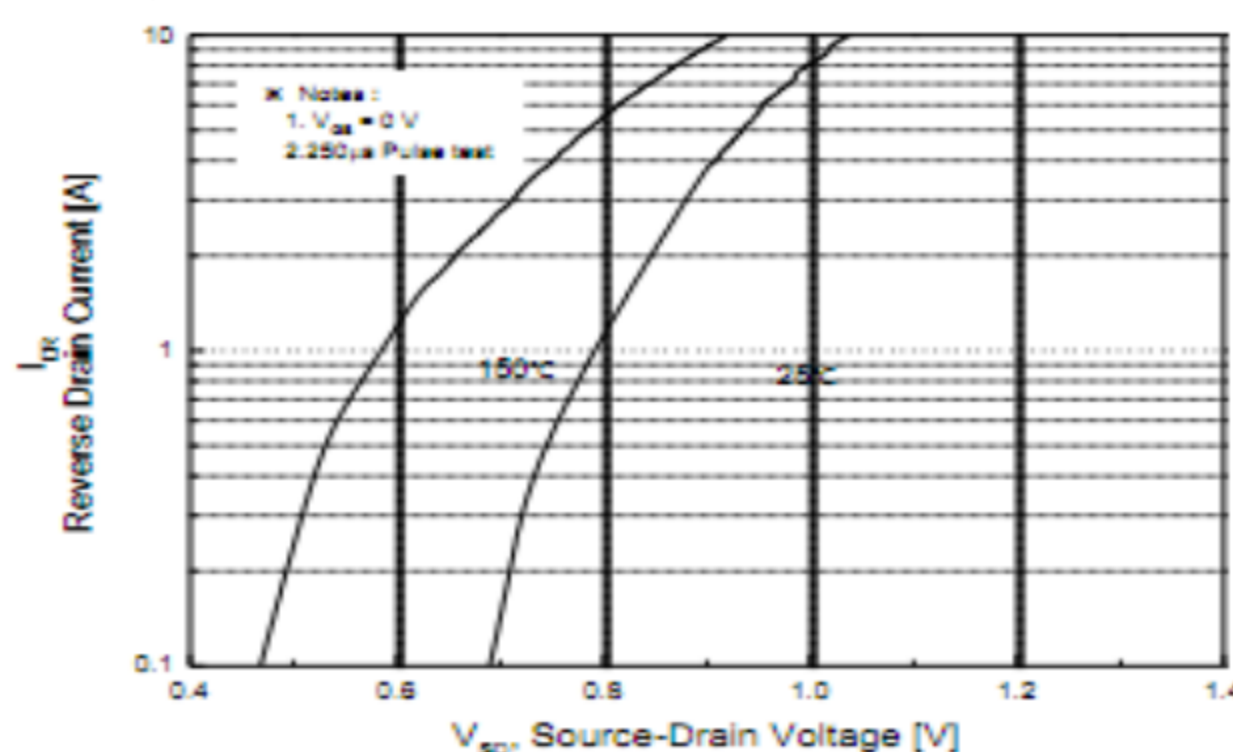


Fig.6 Body Diode Forward Voltage Variation with Source Current and Temperature

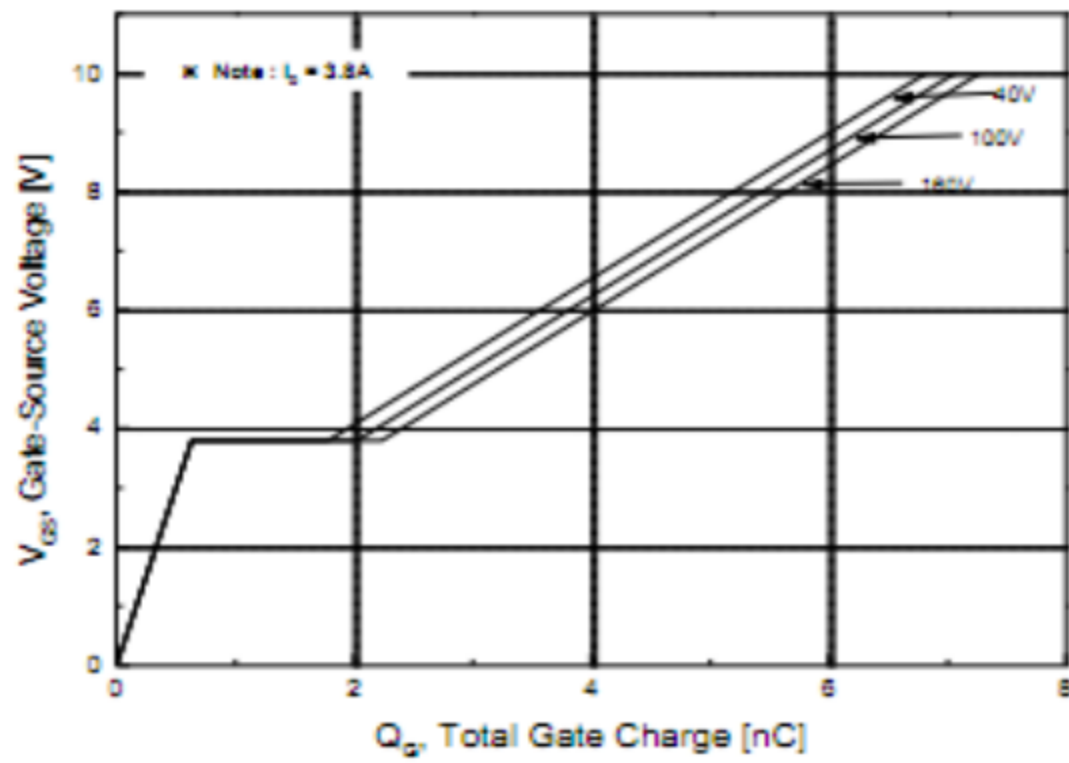


Fig.7 Gate Charge Characteristics

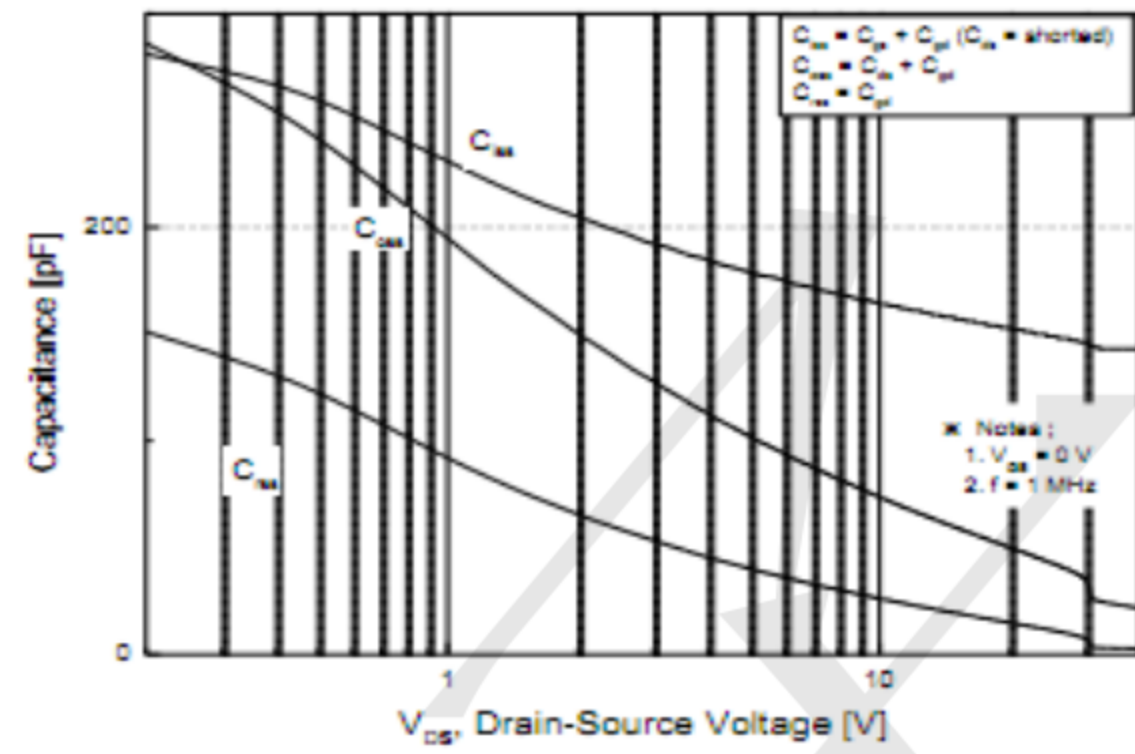


Fig.8 Capacitance Characteristics

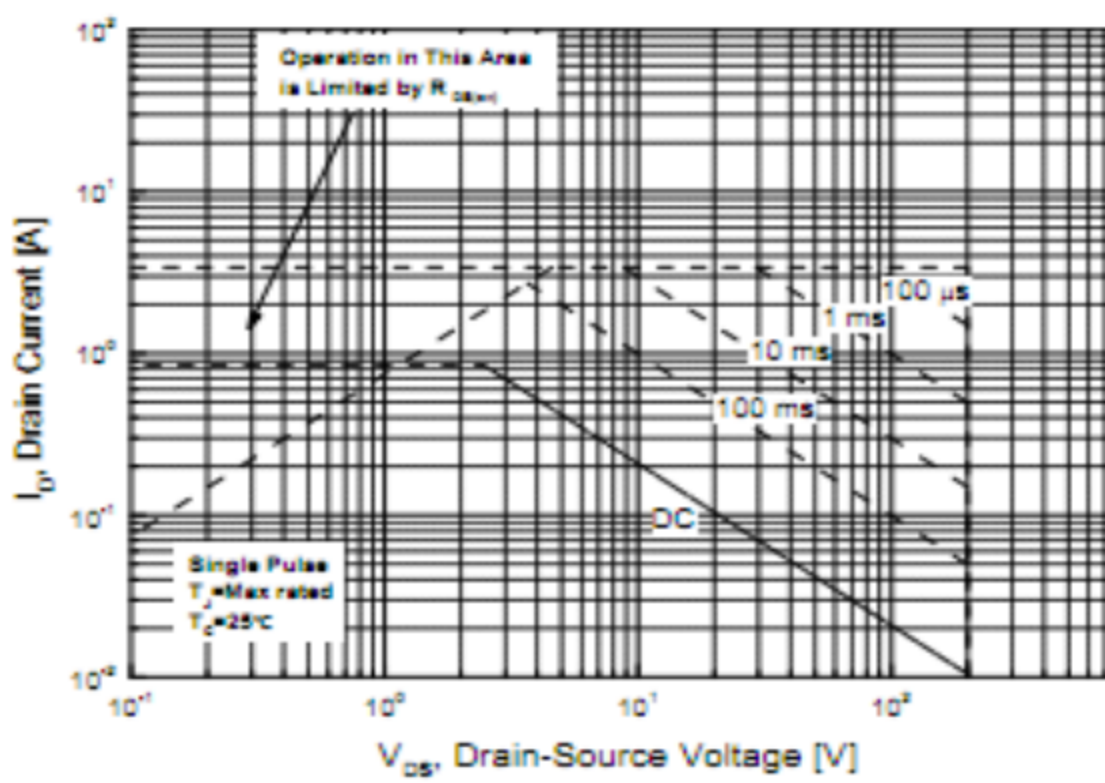


Fig.9 Maximum Safe Operating Area

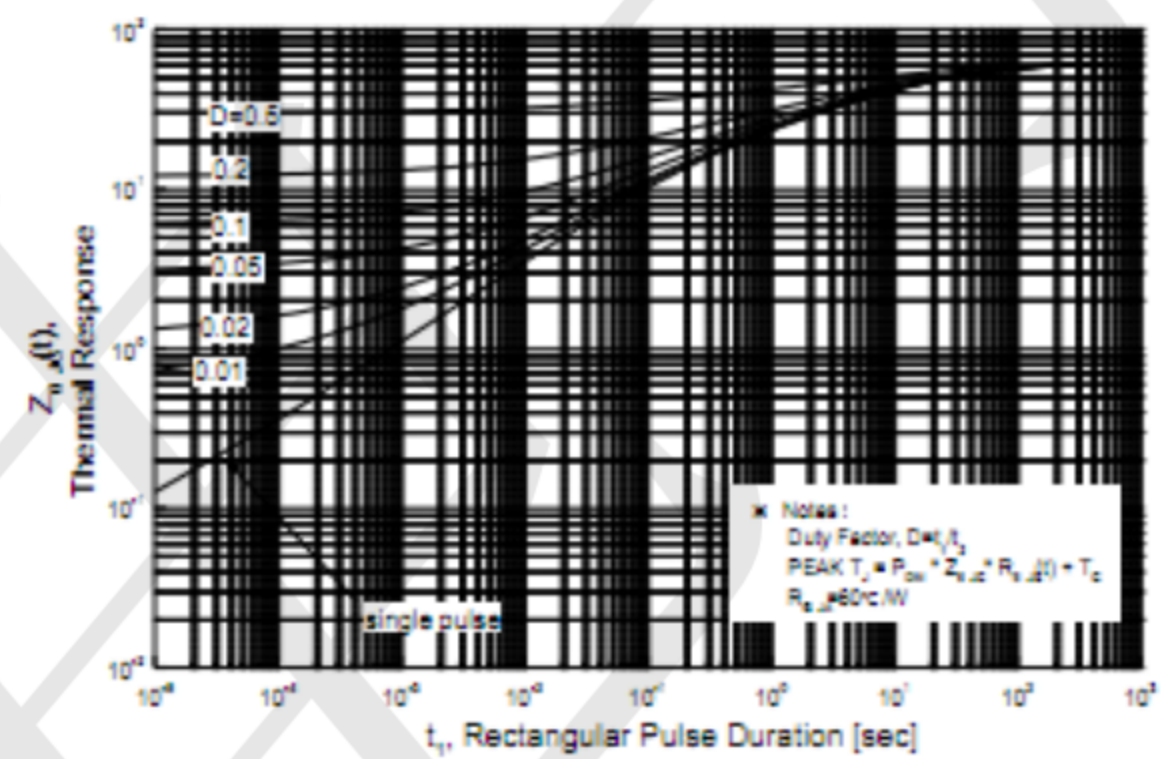


Fig.10 Transient Thermal Response Curve

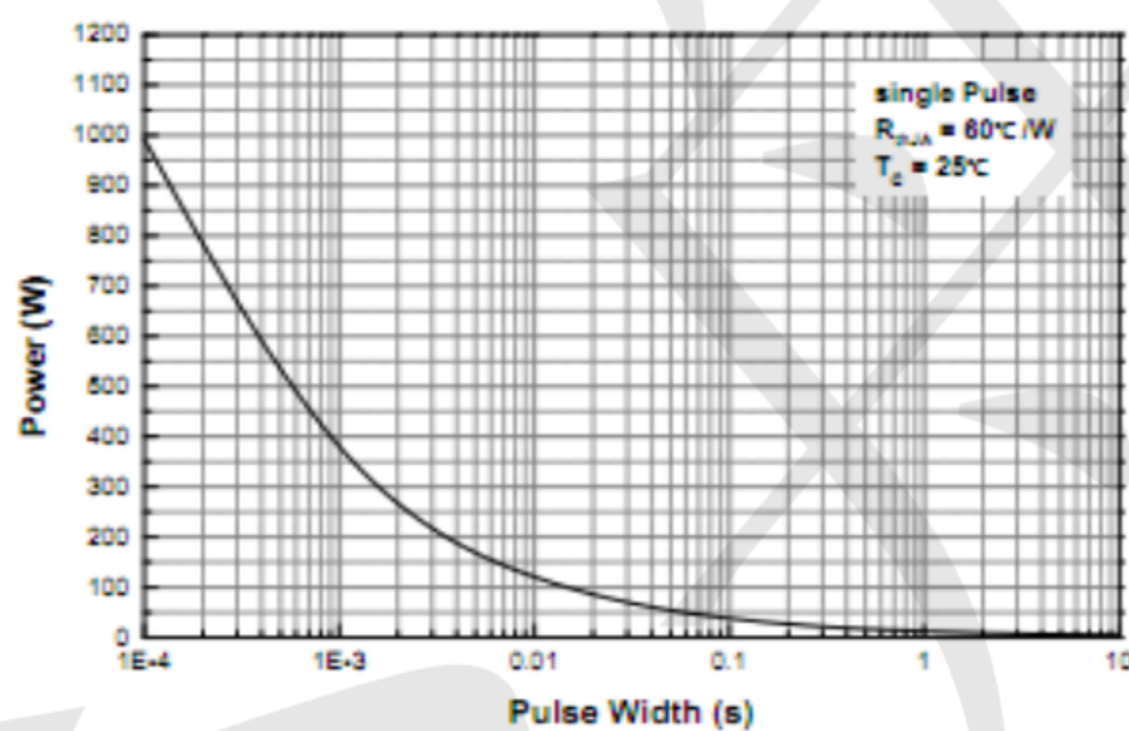


Fig.11 Single Pulse Maximum Power Dissipation

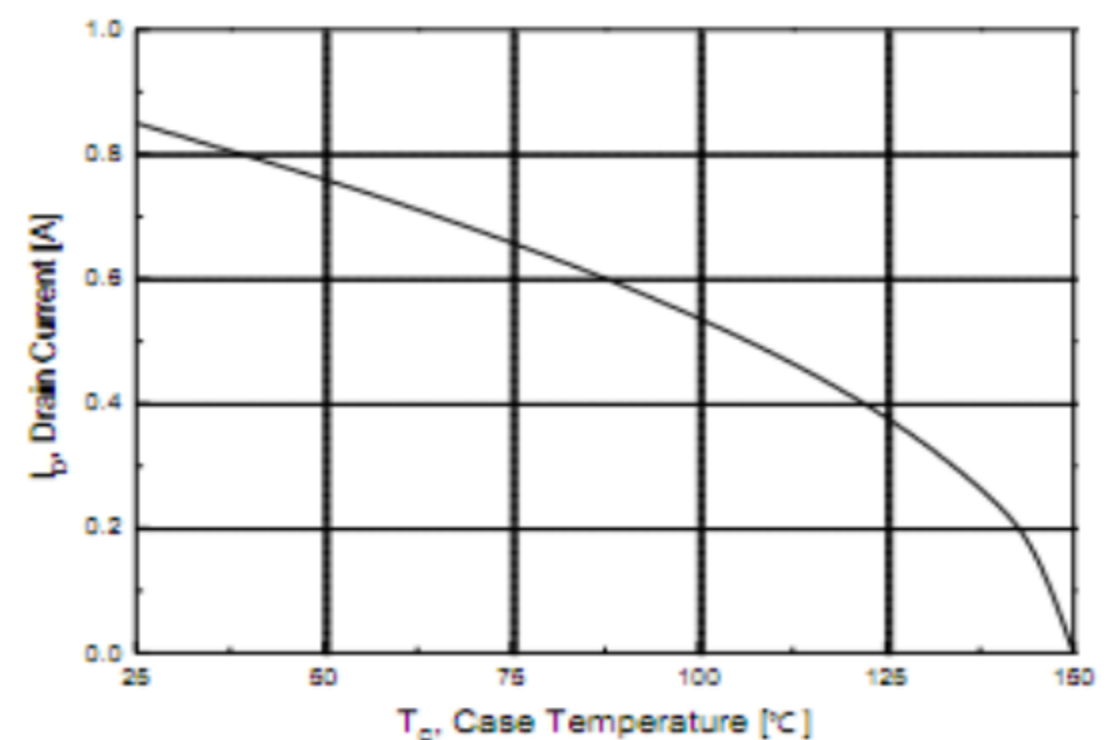
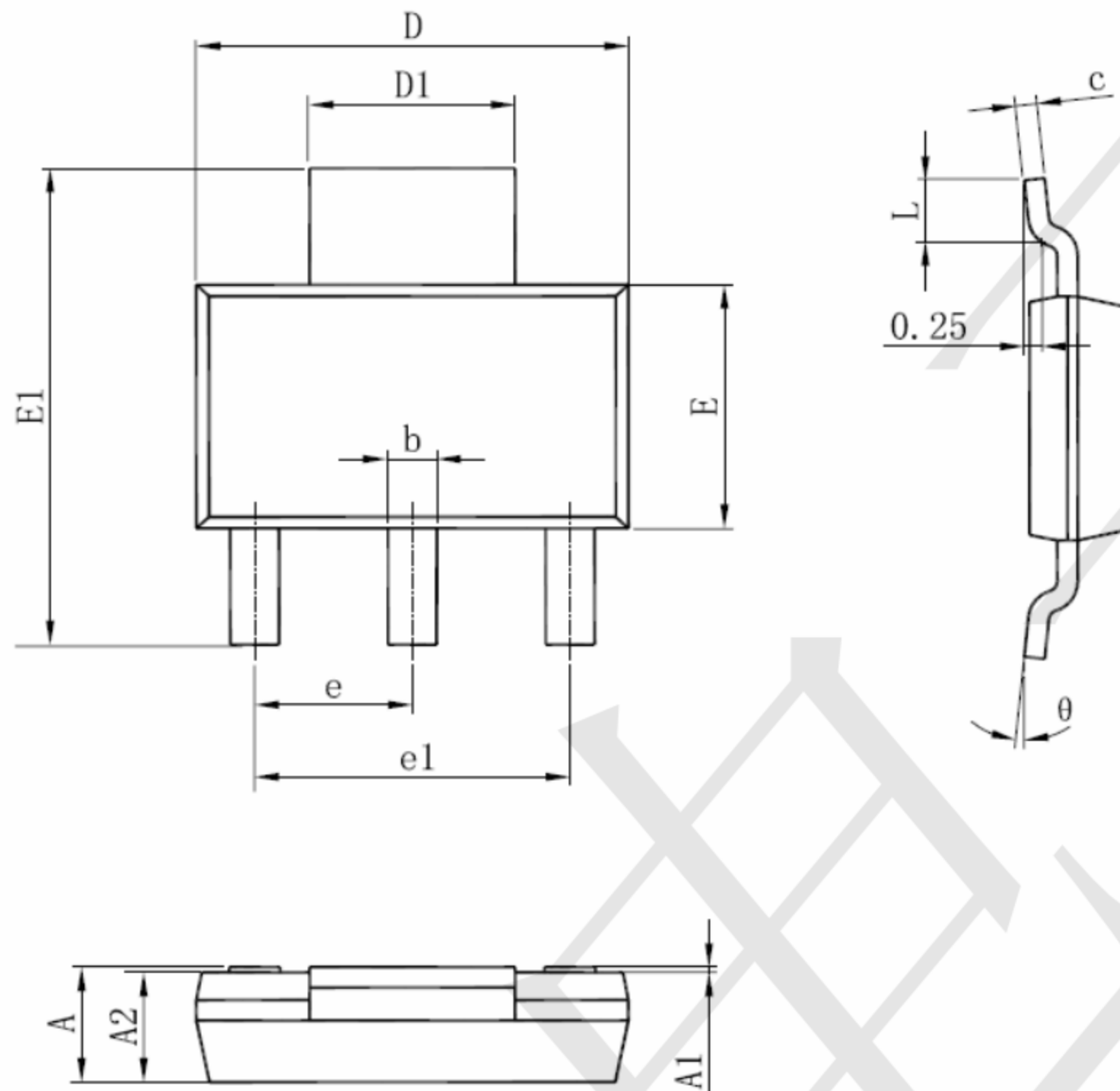


Fig.12 Maximum Drain Current vs. Case Temperature



**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°

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