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NDT2955

P-Channel Enhancement Mode MOSFET

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Features

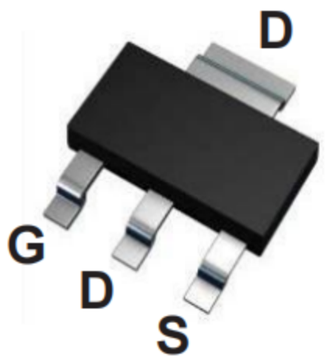
- V_{DS} =-60V,I_D =-3A
  $R_{DS(ON)}$ 95m Ω @ V_{GS}=-10V (Typ)

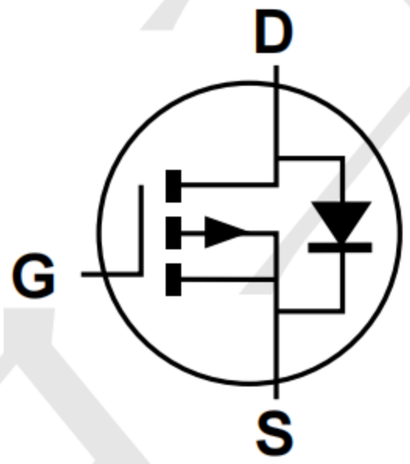
Application

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

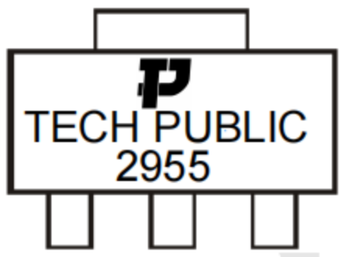
Package and Pin Configuration

SOT223





Marking



Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Characteristic		Symbol	Value	Unit
Drain-Source voltage		V_{DSS}	-60	V
Gate-Source voltage		V_{GS}	±20	V
Continuous Drain current (Note 7) V_{GS} = -10V	T_A = +25°C	I_D	-3	A
	T_A = +70°C		-2.4	
Maximum Body Diode Continuous Current		I_S	-2	A
Pulsed Drain Current (10μs pulse, duty cycle = 1%)		I_{DM}	-15	A
Single Pulsed Avalanche Current (Note 8)		I_{AS}	-16	A
Single Pulsed Avalanche Energy (Note 8)		E_{AS}	13	mJ

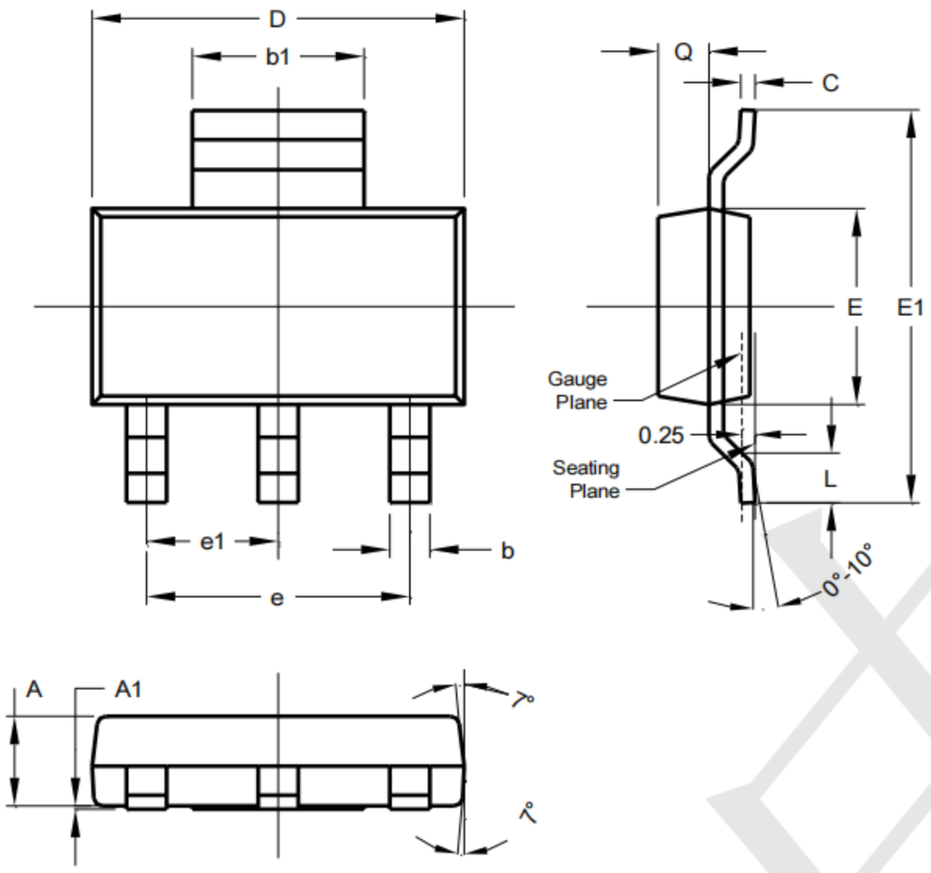
Thermal Characteristic

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 6)	T_A = +25°C	P_D	1.2	W
	T_A = +70°C		0.8	
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	$R_{\theta JA}$	104	°C/W
	t<10s		51	
Total Power Dissipation (Note 7)	T_A = +25°C	P_D	2.2	W
	T_A = +70°C		1.4	
Thermal Resistance, Junction to Ambient (Note 7)	Steady state	$R_{\theta JA}$	60	°C/W
	t<10s		30	
Thermal Resistance, Junction to Case (Note 7)		$R_{\theta JC}$	7.6	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (T_A=25℃unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)						
Drain-Source Breakdown Voltage	BV_{DSS}	-60	–	–	V	V_{GS} = 0V, I_D = -250μA
Zero Gate Voltage Drain Current	I_{DSS}	–	–	-1	μA	V_{DS} = -48V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	–	–	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 9)						
Gate Threshold Voltage	$V_{GS(th)}$	-2	-3	-4	V	V_{DS} = V_{GS}, I_D = -250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	–	95	130	mΩ	V_{GS} = -10V, I_D = -2.2A
Diode Forward Voltage	V_{SD}	–	-0.75	-0.95	V	V_{GS} = 0V, I_S = -1A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C_{iss}	–	708	–	pF	V_{DS} = -30V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{oss}	–	39	–	pF	
Reverse Transfer Capacitance	C_{rss}	–	32	–	pF	
Gate Resistance	R_g	–	17	28	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge (V_{GS} = -4.5V)	Q_g	–	6.2	–	nC	V_{DS} = -30V, I_D = -12A
Total Gate Charge (V_{GS} = -10V)	Q_g	–	14	–	nC	
Gate-Source Charge	Q_{gs}	–	2.8	–	nC	
Gate-Drain Charge	Q_{gd}	–	3.1	–	nC	
Turn-On Delay Time	$t_{D(on)}$	–	5.2	–	ns	V_{DS} = -30V, R_L = 2.5Ω V_{GS} = -10V, R_G = 3Ω
Turn-On Rise Time	t_r	–	23	–	ns	
Turn-Off Delay Time	$t_{D(off)}$	–	33	–	ns	
Turn-Off Fall Time	t_f	–	39	–	ns	
Body Diode Reverse Recovery Time	t_{rr}	–	22	–	ns	I_F = -12A, di/dt = 100A/μs
Body Diode Reverse Recovery Charge	Q_{rr}	–	17	–	nC	

SOT223 Package Information



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Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	4.60
e1	—	—	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			