

Features

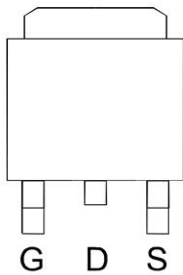
BV _{DSS}	-30V
R _{DS(on)} (MAX.)	30mΩ
I _D	-22A

Application

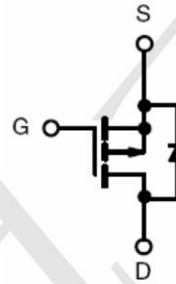
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable
- Electronics
- Logic Level Shift

Package and Pin Configuration

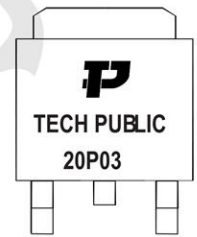
(TO-252)
Top View



1. GATE
2. DRAIN
3. SOURCE



Marking:



ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C = 25 °C	I _D	-22	A
	T _C = 100 °C		-18	
Pulsed Drain Current ¹		I _{DM}	-60	
Avalanche Current		I _{AS}	-12	
Avalanche Energy	L = 0.1mH, I _D = -12A, R _G = 25Ω	E _{AS}	7.2	mJ
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	3.6	
Power Dissipation	T _C = 25 °C	P _D	33	W
	T _C = 100 °C		13	
Operating Junction & Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		3.75	°C / W
Junction-to-Ambient	$R_{\theta JA}$		80	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

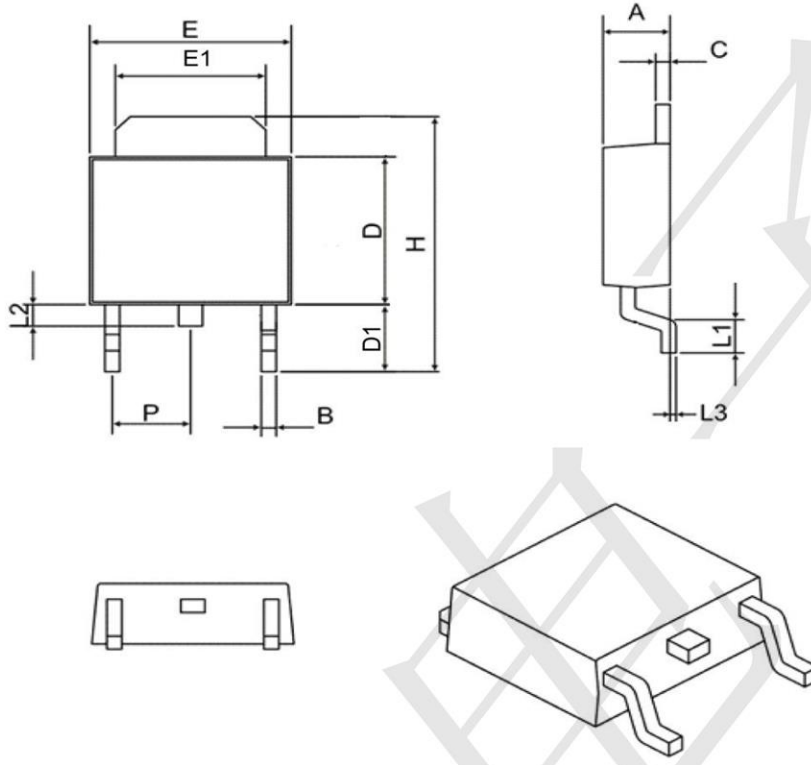
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.5	-3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125^\circ C$			-25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-22			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -20A$		26	30	m Ω
		$V_{GS} = -4.5V, I_D = -7A$		41	51	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -15A$		12		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		910		pF
Output Capacitance	C_{oss}			143		
Reverse Transfer Capacitance	C_{rss}			108		
Gate Resistance	R_g	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$		4.0		Ω
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = -15V, V_{GS} = -10V, I_D = -15A$		13.3		nC
Gate-Source Charge ^{1,2}	Q_{gs}			2.1		
Gate-Drain Charge ^{1,2}	Q_{gd}			3.2		
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = -10V, I_D = -1A, V_{GS} = -10V, R_{GS} = 6\Omega$		12		nS
Rise Time ^{1,2}	t_r			18		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			38		
Fall Time ^{1,2}	t_f			22		



SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I _S				-15	A
Pulsed Current ³	I _{SM}				-60	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -5A, di _F /dt = 100A / μS			55	nS
Reverse Recovery Charge	Q _{rr}				2.2	nC

TO252 Package Information



SYMBOL	MIN	MAX
A	2.10	2.50
B	0.40	0.90
C	0.40	0.90
D	5.30	6.30
D1	2.20	2.90
E	6.30	6.75
E1	4.80	5.50
L1	0.90	1.80
L2	0.50	1.10
L3	0.00	0.20
H	8.90	10.40
P	2.30 BSC	

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