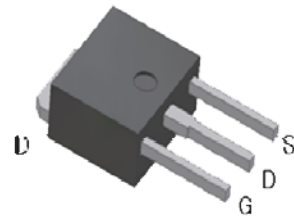
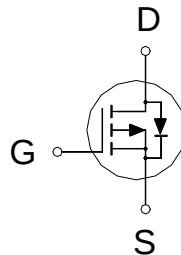


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV _{DSS}	-20V
R _{DS(on)} (MAX.)	9mΩ
I _D	-56A



Pb-Free Lead Plating & Halogen Free



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V _{GS}	±8	V
Continuous Drain Current	T _C = 25 °C	I _D	-56	A
	T _C = 100 °C		-35	
Pulsed Drain Current ¹		I _{DM}	-150	
Avalanche Current		I _{AS}	-25	
Avalanche Energy	L = 0.1mH, I _D = -25A, R _G = 25Ω	E _{AS}	62.5	mJ
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	31.25	
Power Dissipation	T _C = 25 °C	P _D	56	W
	T _C = 100 °C		22	
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 _{θJC}		2.5	°C / W
Junction-to-Ambient ³	R _{θJA}		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_J = 25 °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 = -250μA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.75	-1.2	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
		V _{DS} = -12V, V _{GS} = 0V, T _J = 125 °C			-10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = -5V, V _{GS} = -4.5V	-56			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -24A		7.2	9	mΩ
		V _{GS} = -2.5V, I _D = -15A		9.6	12.5	
		V _{GS} = -1.8V, I _D = -5A		14.5	18	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -24A		32		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz		7660		pF
Output Capacitance	C _{oss}			596		
Reverse Transfer Capacitance	C _{rss}			510		
Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz		3.0		Ω
Total Gate Charge ^{1,2}	Q _g (V _{GS} =-4.5V)	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -24A		51		nC
	Q _g (V _{GS} =-2.5V)			32		
Gate-Source Charge ^{1,2}	Q _{gs}			4.9		
Gate-Drain Charge ^{1,2}	Q _{gd}			13		
Turn-On Delay Time ^{1,2}	t _{d(on)}	V _{DS} = -10V, I _D = -1A, V _{GS} = -4.5V, R _{GS} = 6Ω		25		nS
Rise Time ^{1,2}	t _r			55		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			150		
Fall Time ^{1,2}	t _f			65		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)						
Continuous Current	I _S				-56	A
Pulsed Current ³	I _{SM}				-150	
Forward Voltage ¹	V _{SD}	I _F = -24A, V _{GS} = 0V			-1.2	V

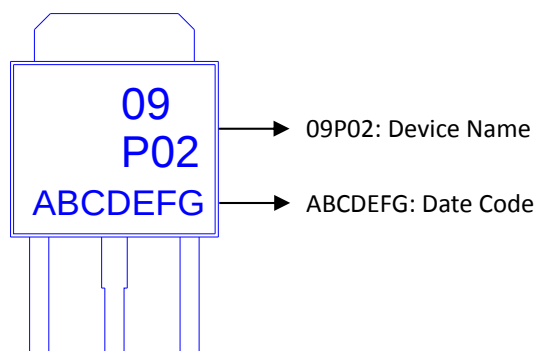
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

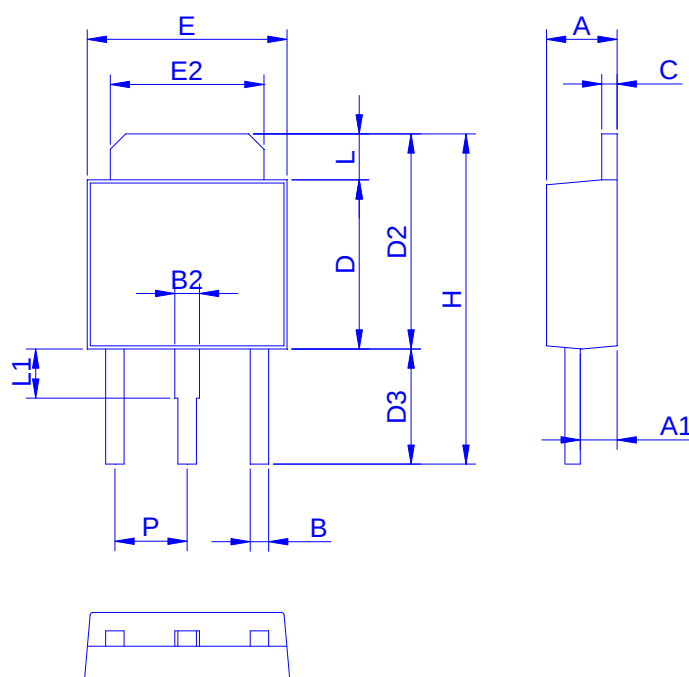
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: LB09P02E for IPAK (TO-251)



Outline Drawing



Dimension in mm

Dimension	A	A1	B	B2	C	D	D2	D3	E	E2	H	L	L1	P
Min.	2.10	0.90	0.40	0.60	0.40	5.30	6.70	3.40	6.30	4.80	10.2	0.89	0.90	2.10
Max.	2.50	1.50	0.90	1.15	0.60	6.25	7.30	4.30	6.80	5.50	11.5	1.40	1.80	2.50

TYPICAL CHARACTERISTICS

