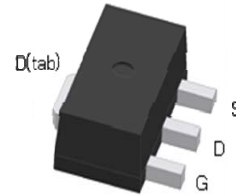


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV _{DSS}	100V
R _{DS(on)} (MAX.)	280mΩ
I _D	2.4A



UIS 100% Tested

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}	±20	V
Continuous Drain Current	T _A = 25 °C	I _D	2.4	A
	T _A = 100 °C		1.6	
Pulsed Drain Current ¹		I _{DM}	9.6	
Avalanche Current		I _{AS}	5	
Avalanche Energy	L = 0.1mH, I _D =5A, R _G =25Ω	E _{AS}	1.25	mJ
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	0.625	
Power Dissipation	T _A = 25 °C	P _D	1.47	W
	T _A = 100 °C		0.58	
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}		35	°C / W
Junction-to-Ambient ³	R _{θJA}		85	

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

³150°C / W when mounted on a 1 in² pad of 2 oz copper.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	3		
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$			1	μA	
		$V_{DS} = 70V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			25		
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	2.4			A	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 2A$		225	280	m Ω	
		$V_{GS} = 4.5V, I_D = 1A$		240	310		
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 2A$		4		S	
DYNAMIC							
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 50V, f = 1MHz$		858		pF	
Output Capacitance	C_{oss}			38			
Reverse Transfer Capacitance	C_{rss}			27			
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = 15V, V_{GS} = 10V,$ $I_D = 2A$		14.3		nC	
Gate-Source Charge ^{1,2}	Q_{gs}			2.9			
Gate-Drain Charge ^{1,2}	Q_{gd}			3.4			
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = 15V,$ $I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$		20		nS	
Rise Time ^{1,2}	t_r			40			
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			36			
Fall Time ^{1,2}	t_f			30			
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_c = 25\text{ }^{\circ}C$)							
Continuous Current	I_S				2	A	
Pulsed Current ³	I_{SM}				8		
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$			1.2	V	
Reverse Recovery Time	t_{rr}			50		nS	
Reverse Recovery Charge	Q_{rr}			90		nC	

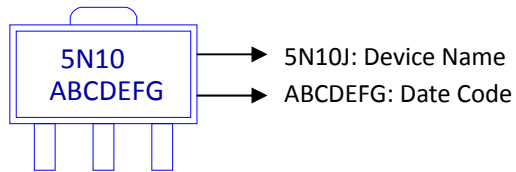
¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

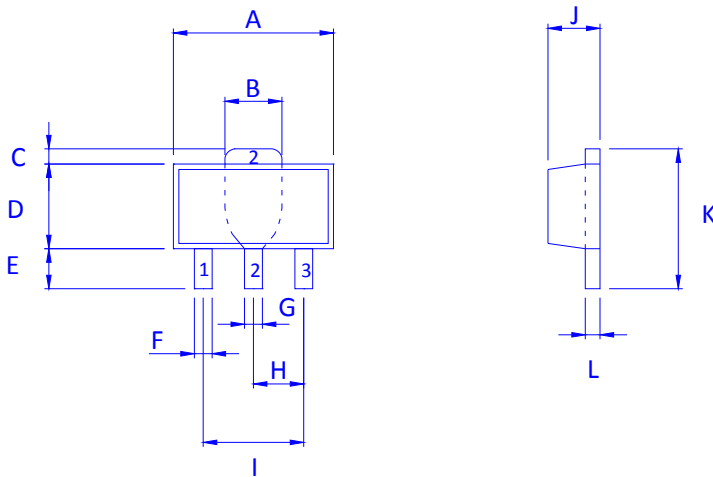
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: LB5N10J for SOT-89



Outline Drawing



Dimension in mm

Dimension	A	B	C	D	E	F	G	H	I	J	K	L
in.	4.30	1.60	0.40	2.40	0.80	0.40	0.40	1.40	2.80	1.30	3.80	0.30
Typ.												
Max.	4.70	1.80	0.60	2.60	1.40	0.50	0.60	1.60	3.20	1.70	4.60	0.50

Footprint

