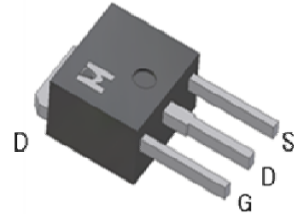


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

$BV_{DSS}$	200V
$R_{DS(on)}$ (MAX.)	1 $\Omega$
$I_D$	3.5A



UIS, 100% Tested

Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS ( $T_C = 25\text{ }^\circ\text{C}$  Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	3.5	A
	$T_C = 100\text{ }^\circ\text{C}$		2.3	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	14	
Avalanche Current		$I_{AS}$	1.5	
Avalanche Energy	$L = 1\text{mH}, I_D = 1.5\text{A}, R_G = 25\text{ }\Omega$	$E_{AS}$	1.12	mJ
Repetitive Avalanche Energy <sup>2</sup>	$L = 0.5\text{mH}$	$E_{AR}$	0.56	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	29	W
	$T_C = 100\text{ }^\circ\text{C}$		11	
Operating Junction & Storage Temperature Range		$T_{j}, T_{stg}$	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		4.2	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle  $\leq 1\%$



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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	200			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	2	3	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 160V, V_{GS} = 0V$			1	$\mu A$
		$V_{DS} = 130V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			25	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	3.5			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 1.8A$		0.8	1	$\Omega$
		$V_{GS} = 5V, I_D = 1.0A$		1.1	1.4	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 1.8A$		2		S
<b>DYNAMIC</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		618		pF
Output Capacitance	$C_{oss}$			14		
Reverse Transfer Capacitance	$C_{rss}$			12		
Total Gate Charge <sup>1,2</sup>	$Q_g$	$V_{DS} = 100V, V_{GS} = 10V,$ $I_D = 1.8A$		16.5		nC
Gate-Source Charge <sup>1,2</sup>	$Q_{gs}$			2.1		
Gate-Drain Charge <sup>1,2</sup>	$Q_{gd}$			4.2		
Turn-On Delay Time <sup>1,2</sup>	$t_{d(on)}$	$V_{DS} = 100V,$ $I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$		15		nS
Rise Time <sup>1,2</sup>	$t_r$			50		
Turn-Off Delay Time <sup>1,2</sup>	$t_{d(off)}$			15		
Fall Time <sup>1,2</sup>	$t_f$			35		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_c = 25\text{ }^\circ\text{C}</math>)</b>						
Continuous Current	$I_S$				3.5	A
Pulsed Current <sup>3</sup>	$I_{SM}$				14	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = I_S, V_{GS} = 0V$			1.5	V

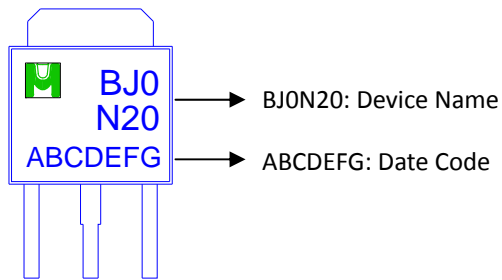
<sup>1</sup>Pulse test : Pulse Width  $\leq 300\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

<sup>2</sup>Independent of operating temperature.

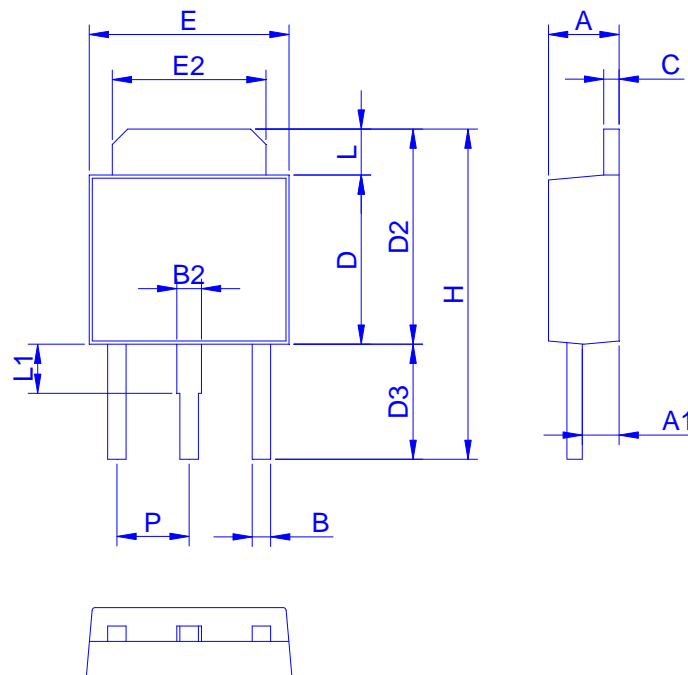
<sup>3</sup>Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMBJ0N20CS 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

