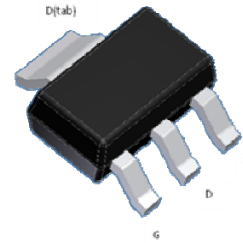


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV _{DSS}	100V
R _{DS(on)} (MAX.)	500mΩ
I _D	2.1A



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 _C = 25 °C	I _D	2.1	A
	T _C = 100 °C		1.4	
Pulsed Drain Current ¹		I _{DM}	8.4	
Power Dissipation	T _C = 25 °C	P _D	6.25	W
	T _C = 100 °C		2.5	
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}		20	°C / W
Junction-to-Ambient ³	R _{θJA}		150	

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 ($T_J = 25\text{ }^\circ\text{C}$, 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	2	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
		$V_{DS} = 70V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	1.8			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 1.5A$		450	500	$m\Omega$
		$V_{GS} = 5V, I_D = 0.5A$		485	570	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 1.5A$		2		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 50V, f = 1MHz$		328		pF
Output Capacitance	C_{oss}			35		
Reverse Transfer Capacitance	C_{rss}			21		
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = 15V, V_{GS} = 10V,$ $I_D = 1.5A$		7.6		nC
Gate-Source Charge ^{1,2}	Q_{gs}			1.1		
Gate-Drain Charge ^{1,2}	Q_{gd}			2.7		
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = 15V,$ $I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$		12		nS
Rise Time ^{1,2}	t_r			15		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			25		
Fall Time ^{1,2}	t_f			20		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$)						
Continuous Current	I_S				2.1	A
Pulsed Current ³	I_{SM}				8.4	
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$			1.2	V
Reverse Recovery Time	t_{rr}			30		nS
Reverse Recovery Charge	Q_{rr}			60		nC

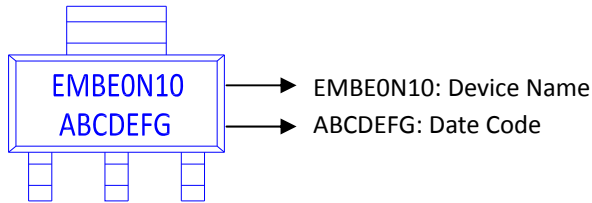
¹Pulse test : Pulse Width $\leq 300\ \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

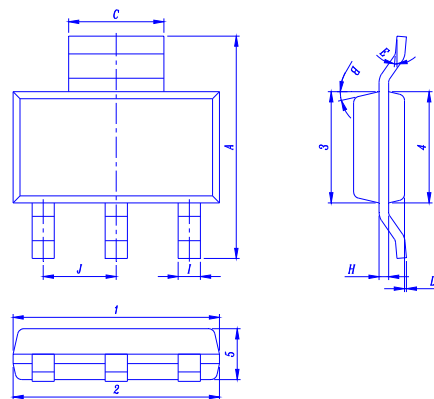
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: EMBE0N10Q for SOT-223



Outline Drawing



Dimension in mm

Dimension	A	C	D	E	I	H	B	J	1	2	3	4	5
Min.	6.70	2.90	0.02	0°	0.60	0.25			6.30	63.0	3.30	3.30	1.40
Typ.							13°	2.30					
Max.	7.30	3.10	0.10	10°	0.80	0.35			6.70	6.70	3.70	3.70	1.80

Recommended minimum pads

