

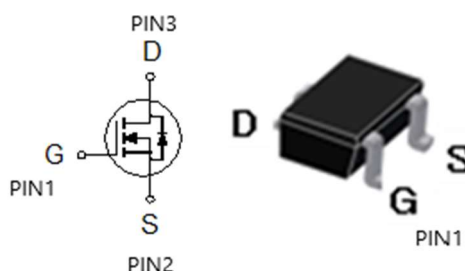
N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	30V
$R_{DS(on)}$ (MAX.)	35m Ω
I_D	5A

N Channel MOSFET

Pb-Free Lead Plating & Halogen Free



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	5	A
	$T_A = 70^\circ\text{C}$		3.3	
Pulsed Drain Current ¹		I_{DM}	20	
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	1.25	W
	$T_A = 70^\circ\text{C}$		0.8	
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-Ambient ³	$R_{\theta JA}$		100	$^\circ\text{C} / \text{W}$
Junction-to-Lead ⁴	$R_{\theta JL}$		55	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³100 $^\circ\text{C} / \text{W}$ when mounted on a 1 in² pad of 2 oz copper.

⁴ $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	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	
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			10		
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	5			A	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 5A$		30	35	m Ω	
		$V_{GS} = 4.5V, I_D = 4A$		40	50		
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 5A$		11		S	
DYNAMIC							
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$		323		pF	
Output Capacitance	C_{oss}			75			
Reverse Transfer Capacitance	C_{rss}			53			
Total Gate Charge ^{1,2}	Q_g	$V_{DS} = 10V, V_{GS} = 10V, I_D = 5A$		7.1		nC	
Gate-Source Charge ^{1,2}	Q_{gs}			1.1			
Gate-Drain Charge ^{1,2}	Q_{gd}			2.2			
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = 15V, I_D = 1A, V_{GS} = 10V, R_{GS} = 6\Omega$		8		nS	
Rise Time ^{1,2}	t_r			12			
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			28			
Fall Time ^{1,2}	t_f			15			
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °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	

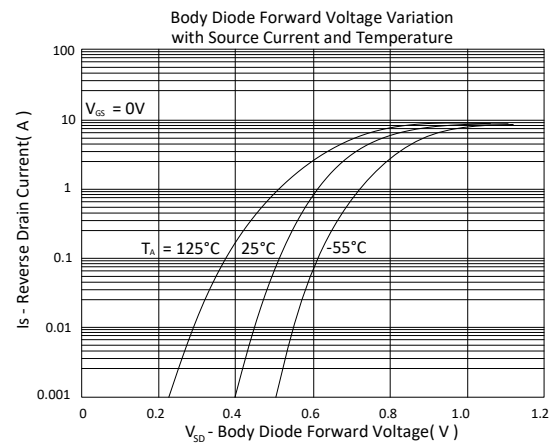
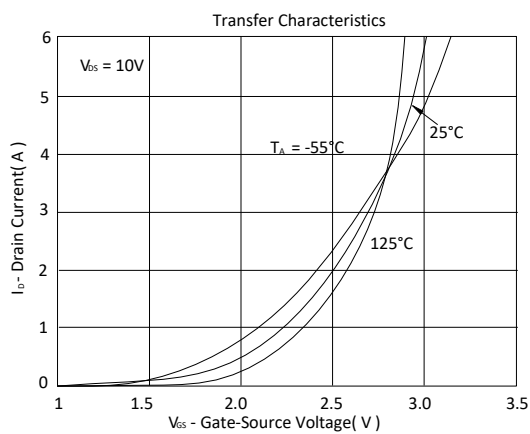
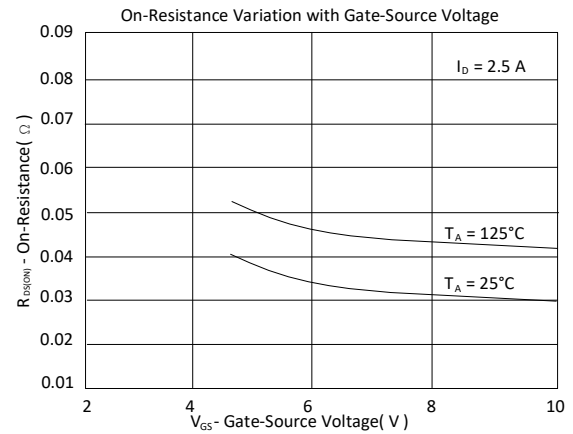
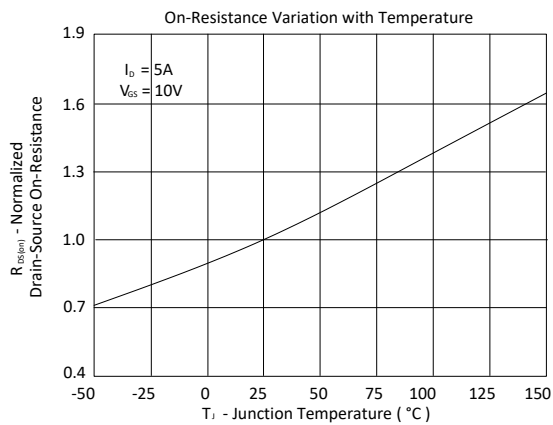
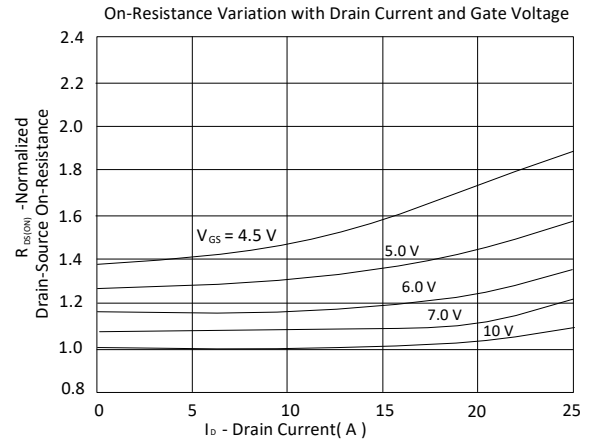
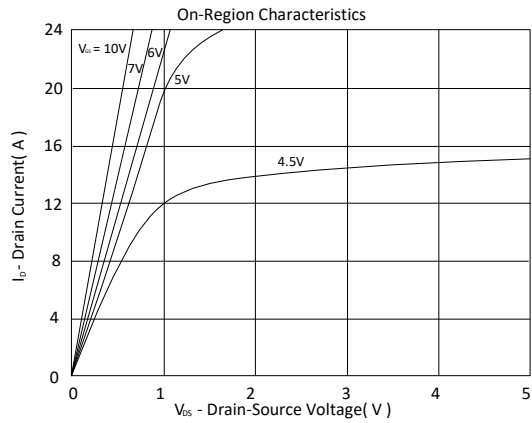
¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.

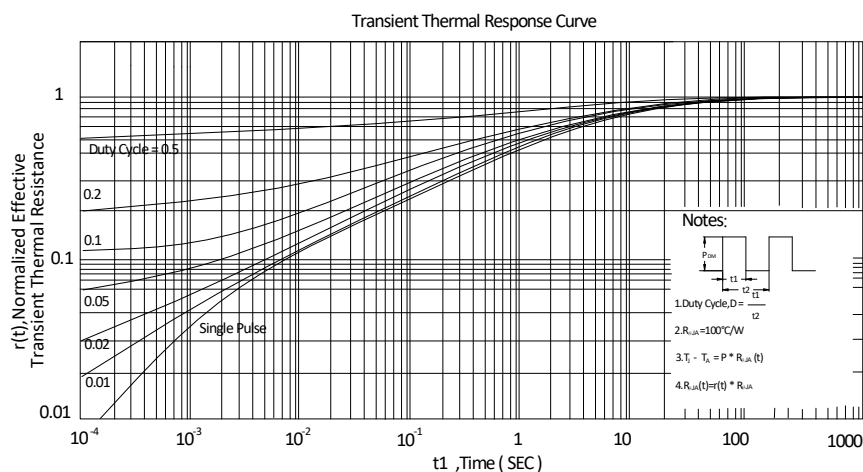
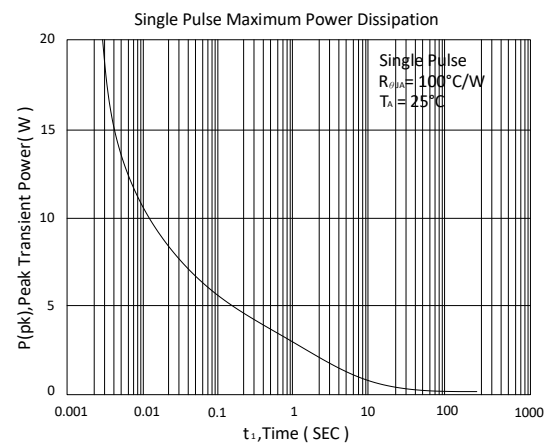
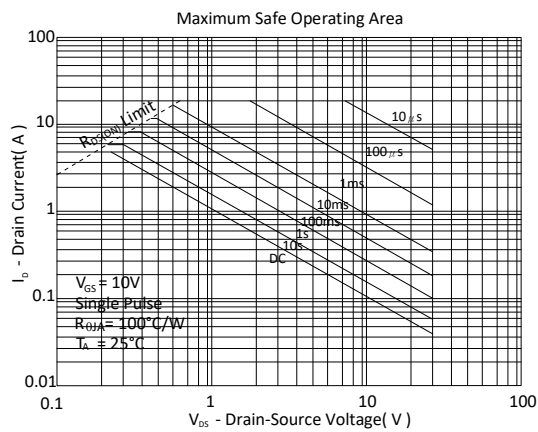
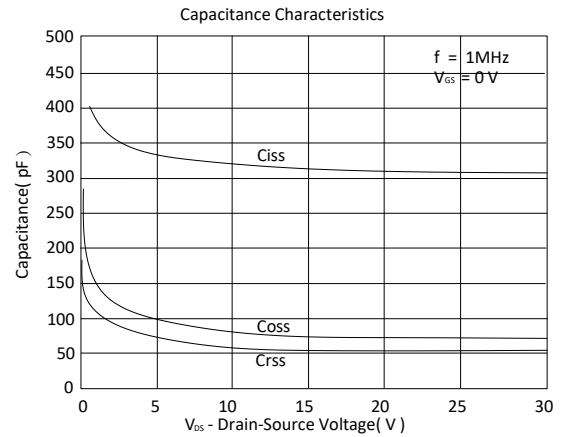
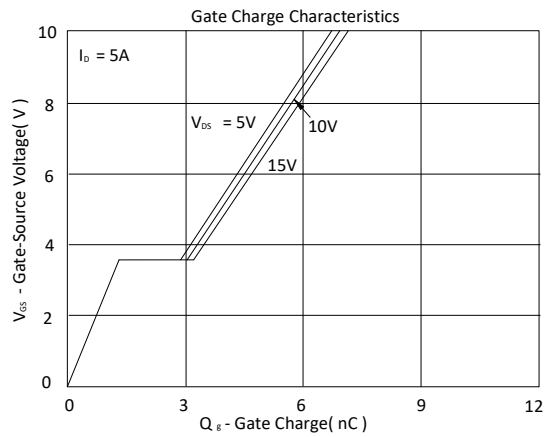
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

EMC will review datasheet by quarter, and update new version.

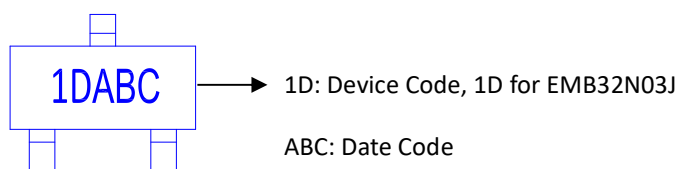
TYPICAL CHARACTERISTICS



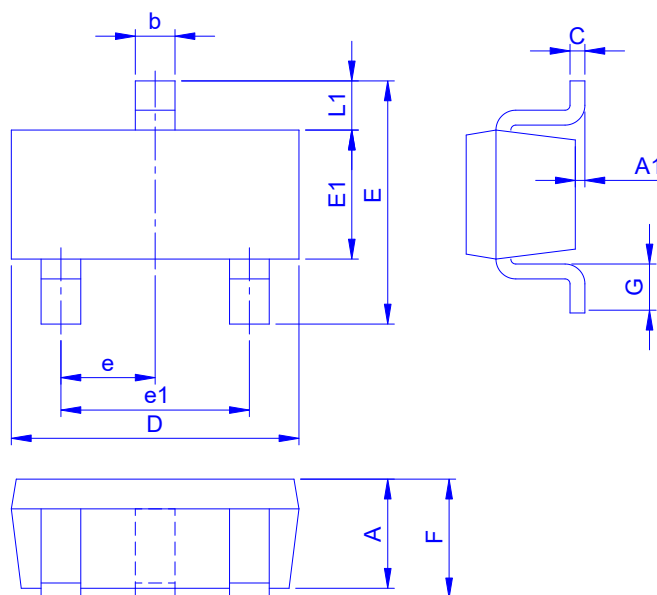


Ordering & Marking Information:

Device Name: EMB32N03J for SOT23-3



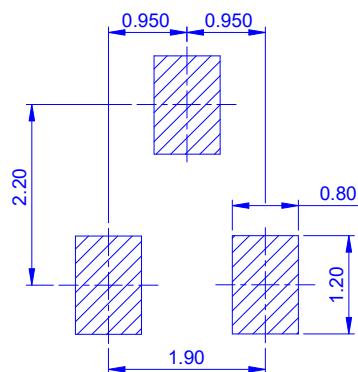
Outline Drawing



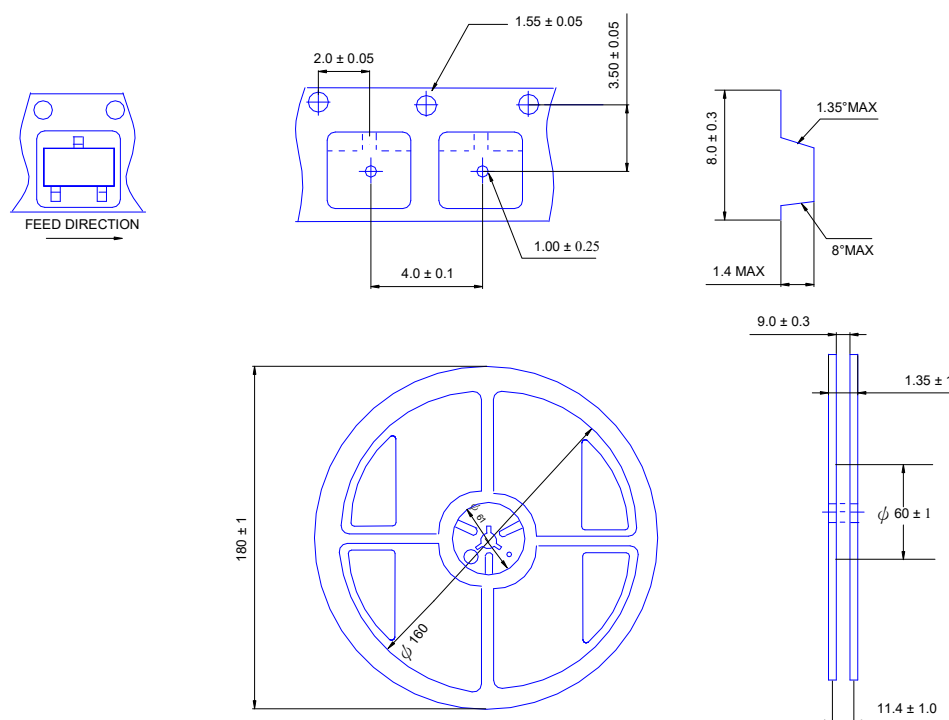
Dimension in mm

Dimension	A	A1	b	C	D	E	E1	e	e1	F	G	L1
Min.	0.70	-	0.30	0.080	2.80	2.10	1.20	0.90	1.80	0.80	0.30	0.54
Typ.	0.95	-	0.40	0.127	2.90	2.50	1.30	0.95	1.90	0.95	0.40	0.57
Max.	1.20	0.15	0.50	0.202	3.10	3.00	1.80	1.00	2.00	1.25	0.60	0.70

Footprint



◆ Tape&Reel Information:3000pcs/Reel



產品別	SOT23-3
Reel 尺寸	7"
編帶方式	FEED DIRECTION
前空格	50
後空格	50
裝箱數	
滿捲數量	3K
捲/內盒比	5 : 1
內盒滿箱數	15K
內/外箱比	12 : 1
外箱滿箱數	180K