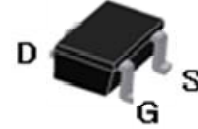
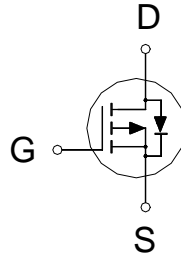


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

$BV_{DSS}$	-30V
$R_{DS(on)}$ (MAX.)	50m $\Omega$
$I_D$	-4.5A



Pb-Free Lead Plating & Halogen Free



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	$I_D$	-4.5	A
	$T_A = 70\text{ }^\circ\text{C}$		-3.5	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-18	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	$P_D$	1.04	W
	$T_A = 70\text{ }^\circ\text{C}$		0.66	
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 <sup>3</sup>	$R_{\theta JA}$ ( $T \leq 10\text{sec}$ )		83	$^\circ\text{C} / \text{W}$
	$R_{\theta JA}$ (Steady State)		120	

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

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

<sup>3</sup>The device mounted on a 1 in<sup>2</sup> pad of 2 oz copper.

**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1	-1.5	-3	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V			-1	μA
		V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 °C			-10	
On-State Drain Current <sup>1</sup>	I <sub>D(ON)</sub>	V <sub>DS</sub> = -5V, V <sub>GS</sub> = -10V	-4.5			A
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.5A		42	50	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A		66	85	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4.5A		16		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -15V, f = 1MHz		820		pF
Output Capacitance	C <sub>oss</sub>			122		
Reverse Transfer Capacitance	C <sub>rss</sub>			97		
Total Gate Charge <sup>1,2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.5A		9		nC
Gate-Source Charge <sup>1,2</sup>	Q <sub>gs</sub>			2.2		
Gate-Drain Charge <sup>1,2</sup>	Q <sub>gd</sub>			2.5		
Turn-On Delay Time <sup>1,2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = -15V, I <sub>D</sub> = -1A, V <sub>GS</sub> = -10V, R <sub>GS</sub> = 6Ω		12		nS
Rise Time <sup>1,2</sup>	t <sub>r</sub>			16		
Turn-Off Delay Time <sup>1,2</sup>	t <sub>d(off)</sub>			34		
Fall Time <sup>1,2</sup>	t <sub>f</sub>			20		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>C</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				-3	A
Pulsed Current <sup>3</sup>	I <sub>SM</sub>				-12	
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = I <sub>S</sub> , V <sub>GS</sub> = 0V			-1.2	V

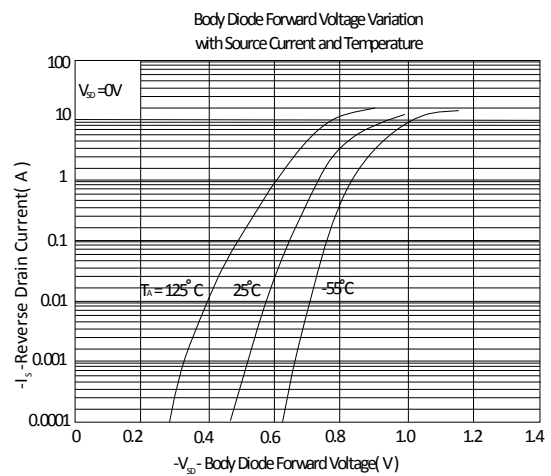
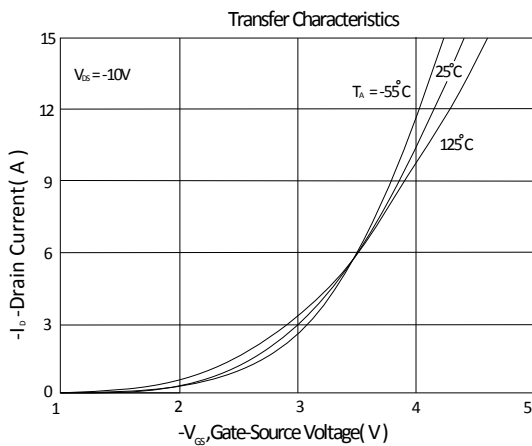
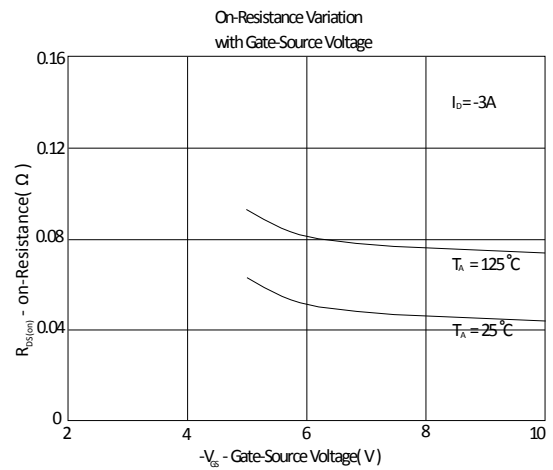
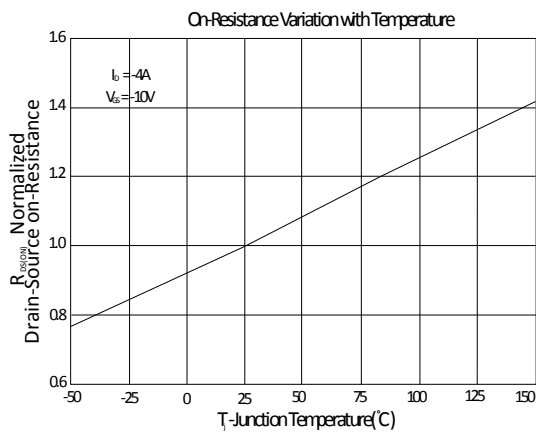
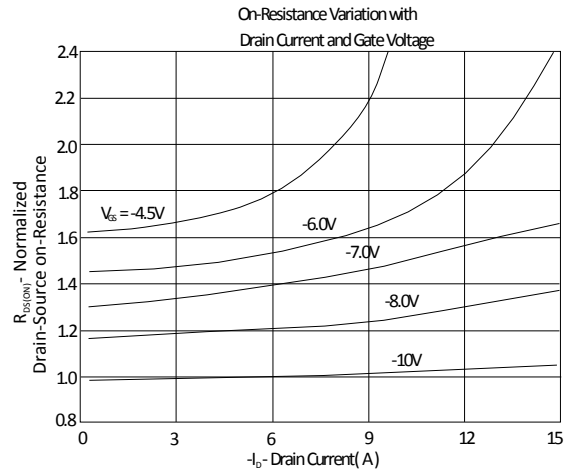
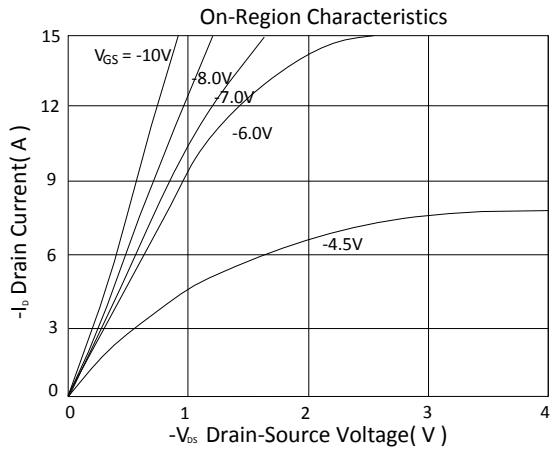
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

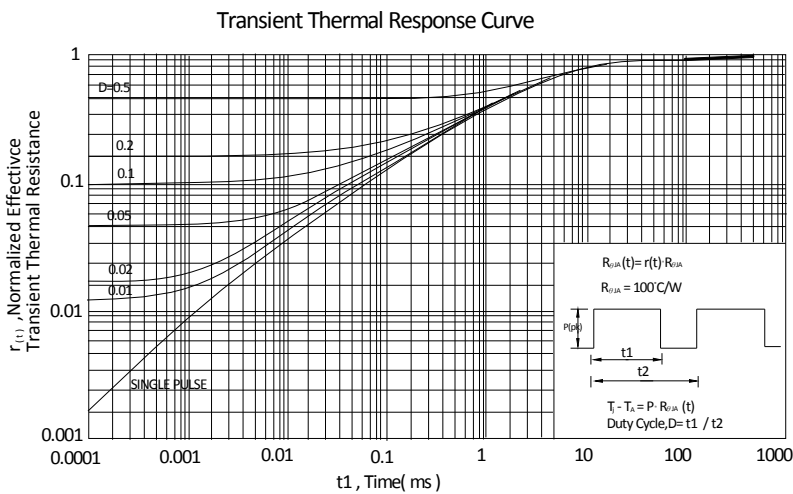
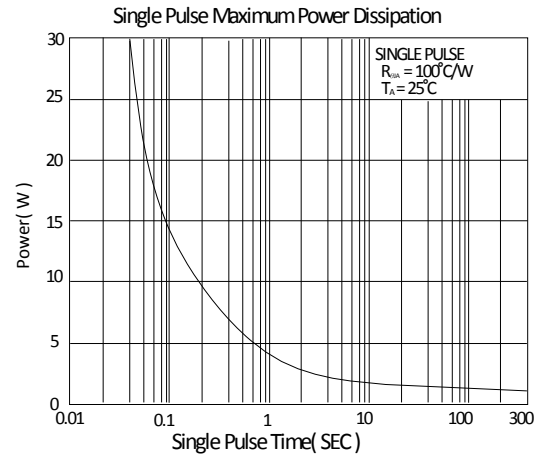
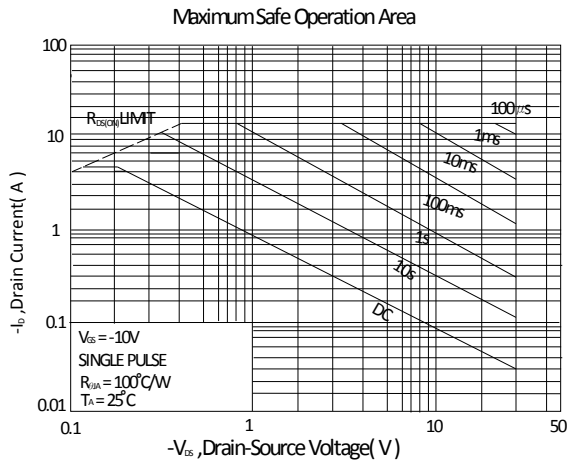
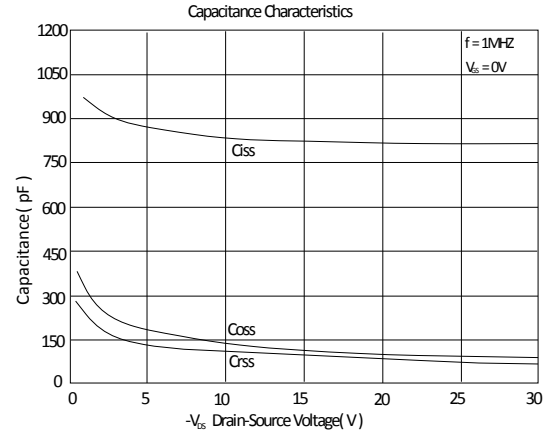
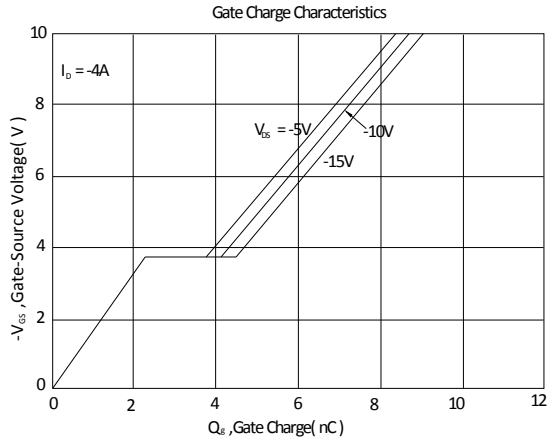
<sup>2</sup>Independent of operating temperature.

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



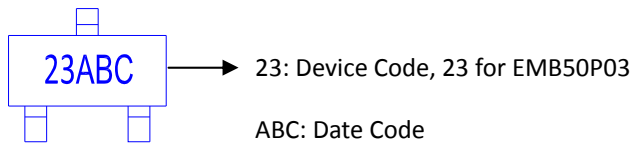
TYPICAL CHARACTERISTICS



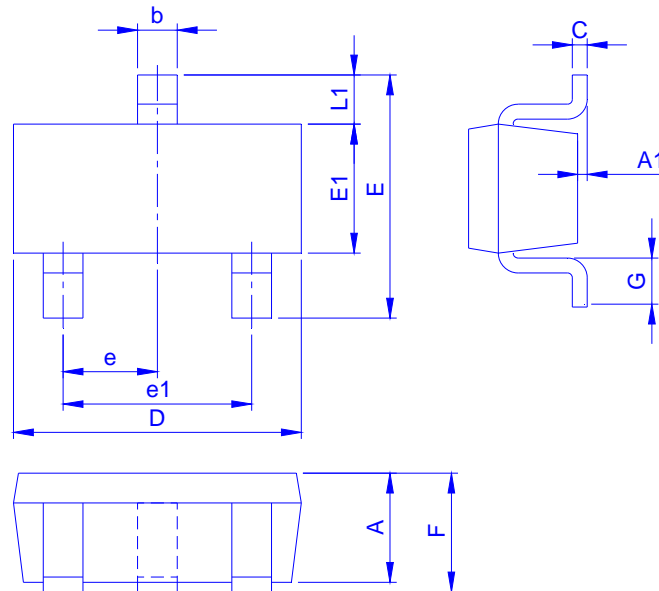


Ordering & Marking Information:

Device Name: EMB50P03JS for SOT-23



Outline Drawing



Dimension in mm

Dimension	A	A1	b	C	D	E	E1	e	e1	F	G	L1
Min.	0.70	0	0.3	0.08	2.80	2.25	1.2	0.90		0.80	0.3	0.50
Typ.					2.90			0.95	1.9			
Max.	1.15	0.1	0.5	0.20	3.02	3.00	1.7	1.00		1.25	0.6	0.75

Footprint

