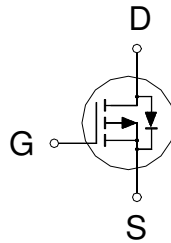


**P-Channel Logic Level Enhancement Mode Field Effect Transistor**

**Product Summary:**

BV <sub>DSS</sub>	-20V
R <sub>DS(on)</sub> (MAX.)	60mΩ
I <sub>D</sub>	-4A



Pb-Free Lead Plating & Halogen Free



**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V <sub>GS</sub>	±12	V
Continuous Drain Current	T <sub>A</sub> = 25 °C	I <sub>D</sub>	-4	A
	T <sub>A</sub> = 70 °C		-2.8	
Pulsed Drain Current <sup>1</sup>		I <sub>DM</sub>	-16	
Power Dissipation	T <sub>A</sub> = 25 °C	P <sub>D</sub>	1.25	W
	T <sub>A</sub> = 70 °C		0.8	
Operating Junction & Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Ambient <sup>3</sup>	R <sub>θJA</sub>		100	°C / W
Junction-to-Lead <sup>4</sup>	R <sub>θJL</sub>		55	

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

<sup>2</sup>Duty cycle ≤ 1%

<sup>3</sup>100°C / W when mounted on a 1 in<sup>2</sup> pad of 2 oz copper.

<sup>4</sup> R<sub>θJA</sub> is the sum of the thermal impedance from junction to lead R<sub>θJL</sub> and lead to ambient.

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	-20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.3	-0.75	-1.2	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±12V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V			-1	μA
		V <sub>DS</sub> = -16V, 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> = -4.5V	-4			A
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A		50	60	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -2.5A		75	96	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -1.0A		150	250	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -3.5A		10		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -10V, f = 1MHz		382		pF
Output Capacitance	C <sub>oss</sub>			70		
Reverse Transfer Capacitance	C <sub>rss</sub>			60		
Total Gate Charge <sup>1,2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A		7.2		nC
Gate-Source Charge <sup>1,2</sup>	Q <sub>gs</sub>			1.2		
Gate-Drain Charge <sup>1,2</sup>	Q <sub>gd</sub>			2.3		
Turn-On Delay Time <sup>1,2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -1A, V <sub>GS</sub> = -4.5V, R <sub>GS</sub> = 6Ω		17		nS
Rise Time <sup>1,2</sup>	t <sub>r</sub>			32		
Turn-Off Delay Time <sup>1,2</sup>	t <sub>d(off)</sub>			37		
Fall Time <sup>1,2</sup>	t <sub>f</sub>			32		
<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

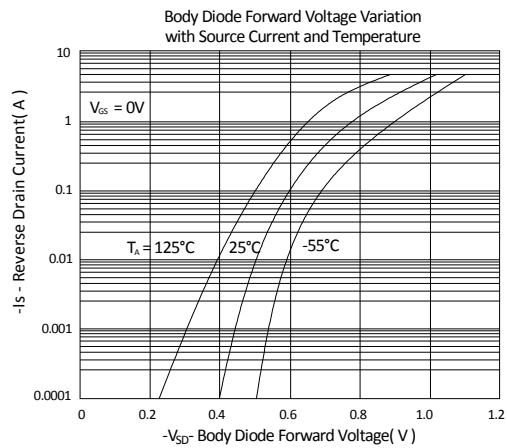
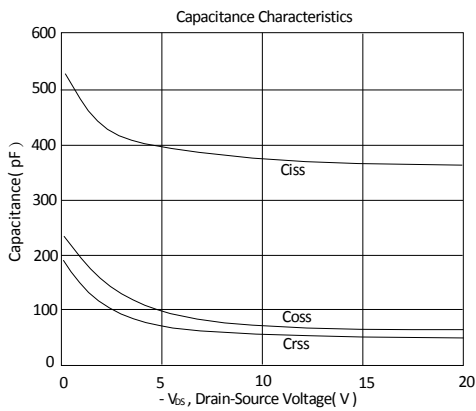
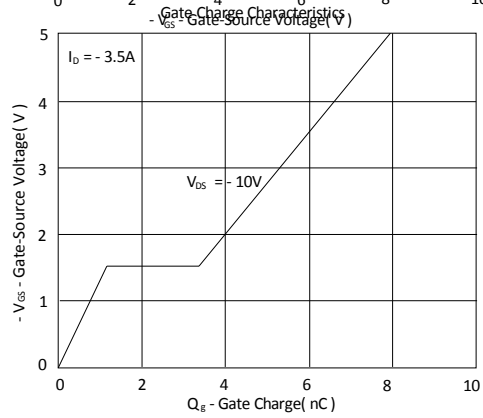
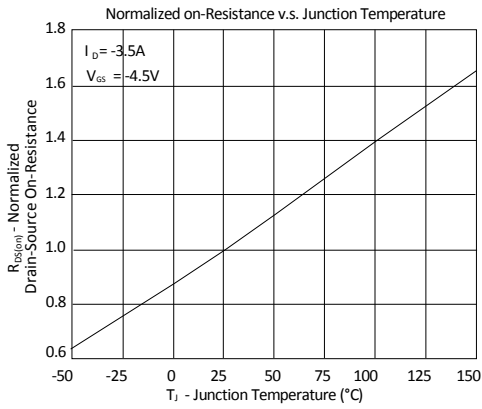
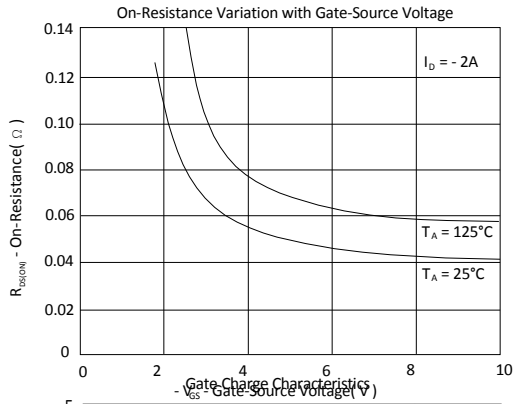
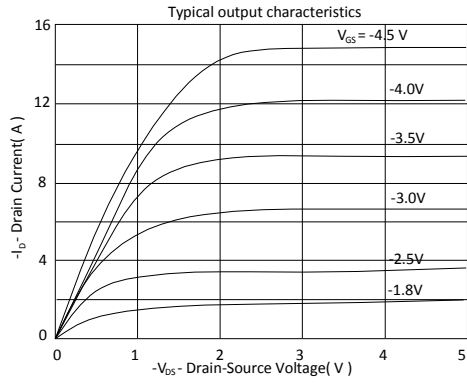
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

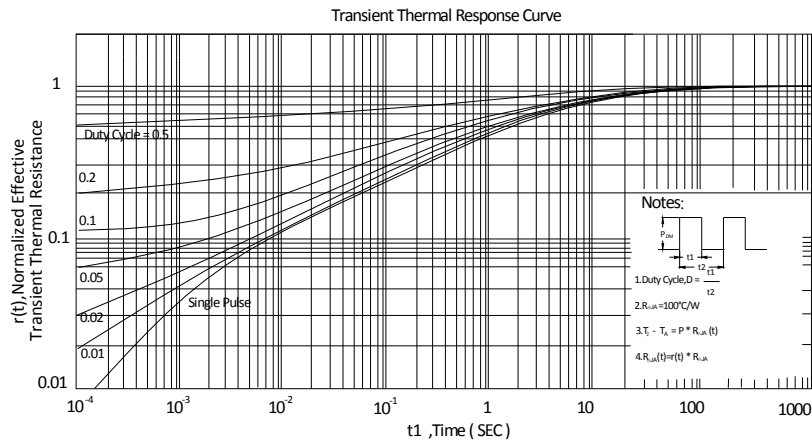
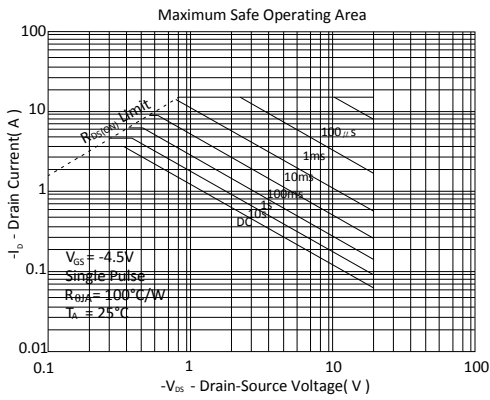
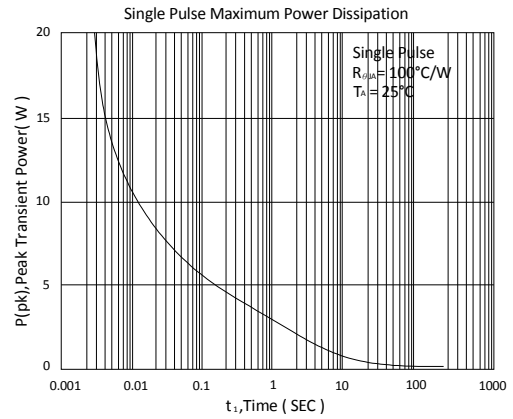
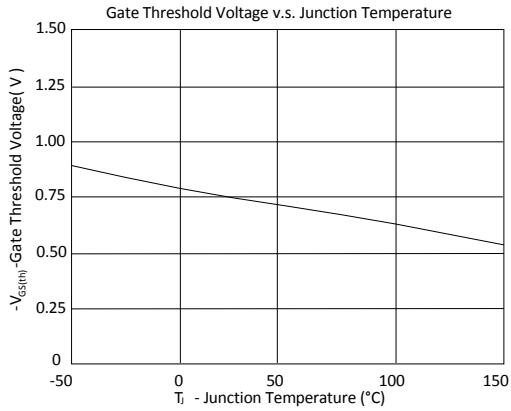
<sup>2</sup>Independent of operating temperature.

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

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

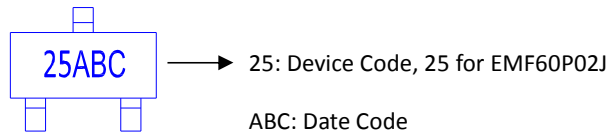
TYPICAL CHARACTERISTICS



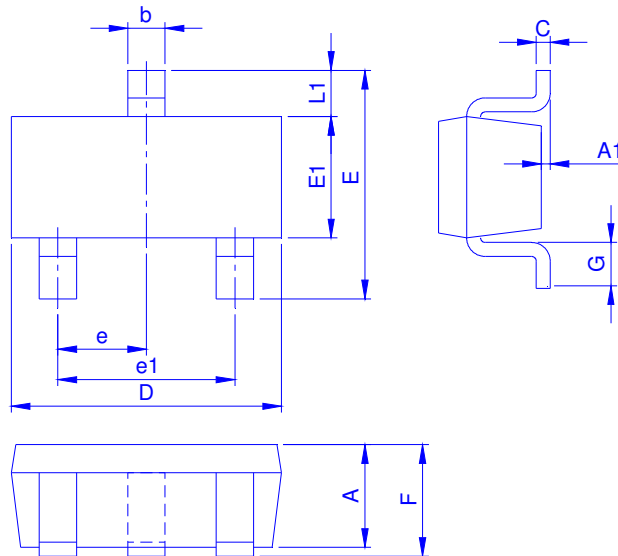


Ordering & Marking Information:

Device Name: EMF60P02J for SOT23-3



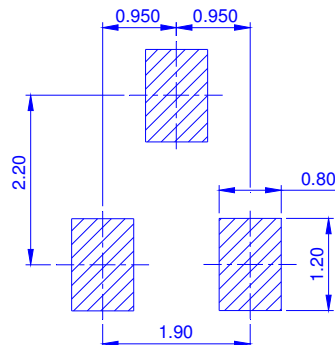
Outline Drawing



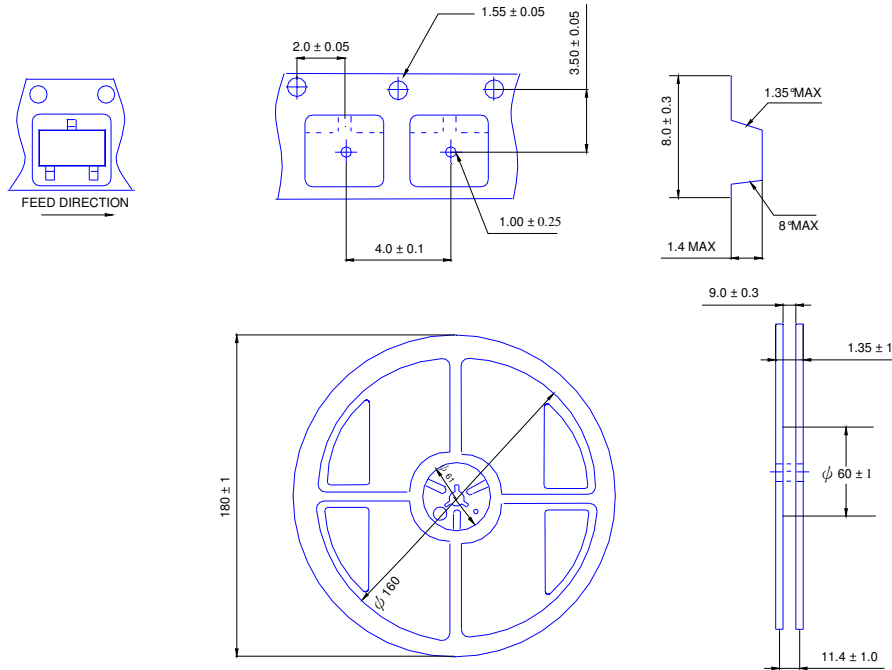
Dimension in mm

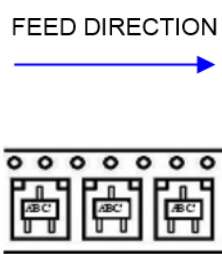
Dimension	A	A1	b	C	D	E	E1	e	e1	F	G	L1
Min.	0.70	-	0.30	0.080	2.80	2.10	1.20	0.90	1.80	0.80	0.30	0.54
Typ.	0.95	-	0.40	0.127	2.90	2.50	1.30	0.95	1.90	0.95	0.40	0.57
Max.	1.20	0.15	0.50	0.202	3.10	3.00	1.80	1.00	2.00	1.25	0.60	0.70

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