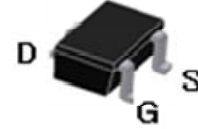
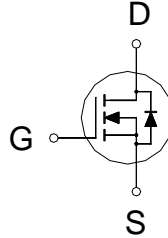


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV <sub>DSS</sub>	20V
R <sub>DSON</sub> (MAX.)	45mΩ
I <sub>D</sub>	3.6A



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>	3.6	A
	T <sub>A</sub> = 70 °C		2.9	
Pulsed Drain Current <sup>1</sup>		I <sub>DM</sub>	14	
Power Dissipation	T <sub>A</sub> = 25 °C	P <sub>D</sub>	1.04	W
	T <sub>A</sub> = 70 °C		0.66	
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> (T ≤ 10sec)		83	°C / W
	R <sub>θJA</sub> (Steady State)		120	

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

<sup>2</sup>Duty cycle ≤ 1%

<sup>3</sup>The device mounted on a 1 in<sup>2</sup> 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	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	0.75	1.2	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 12V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 16V, V_{GS} = 0V$			1	$\mu A$
		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			10	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	3.6			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 3.5A$		36	45	m $\Omega$
		$V_{GS} = 2.5V, I_D = 2A$		43	60	
		$V_{GS} = 1.8V, I_D = 1A$		58	85	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 3.5A$		5		S
<b>DYNAMIC</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$		355		pF
Output Capacitance	$C_{oss}$			56		
Reverse Transfer Capacitance	$C_{rss}$			40		
Total Gate Charge <sup>1,2</sup>	$Q_g$	$V_{DS} = 10V, V_{GS} = 4.5V,$ $I_D = 3.5A$		4.6		nC
Gate-Source Charge <sup>1,2</sup>	$Q_{gs}$			0.66		
Gate-Drain Charge <sup>1,2</sup>	$Q_{gd}$			1.5		
Turn-On Delay Time <sup>1,2</sup>	$t_{d(on)}$	$V_{DS} = 10V,$ $I_D = 1A, V_{GS} = 4.5V, R_{GS} = 6\Omega$		8		nS
Rise Time <sup>1,2</sup>	$t_r$			10		
Turn-Off Delay Time <sup>1,2</sup>	$t_{d(off)}$			20		
Fall Time <sup>1,2</sup>	$t_f$			15		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_C = 25\text{ }^\circ\text{C}</math>)</b>						
Continuous Current	$I_S$				2	A
Pulsed Current <sup>3</sup>	$I_{SM}$				8	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = I_S, V_{GS} = 0V$			1.2	V

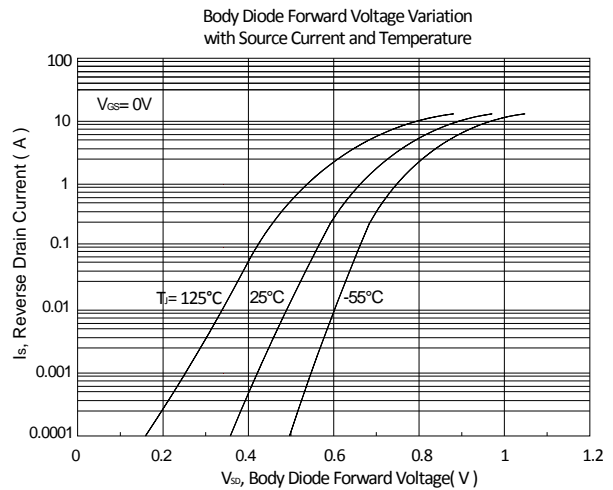
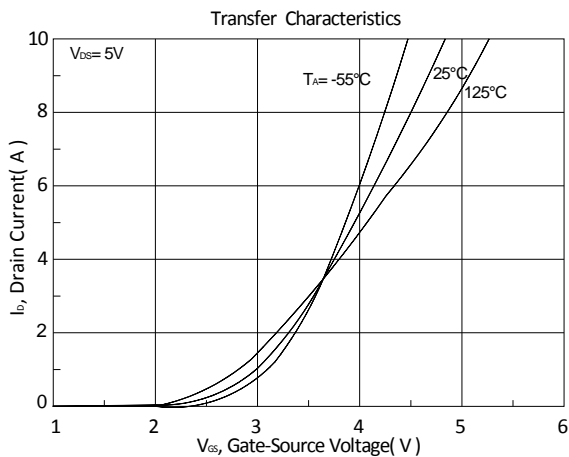
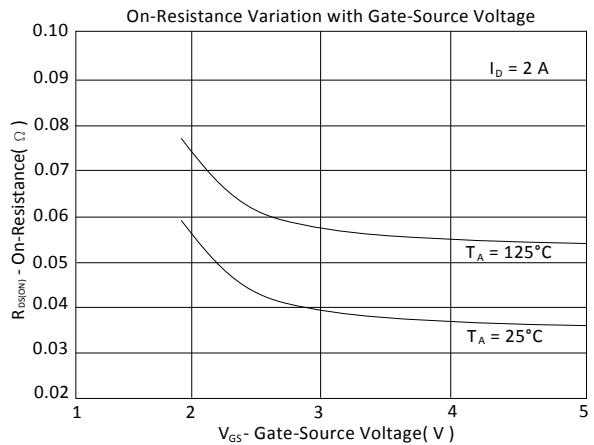
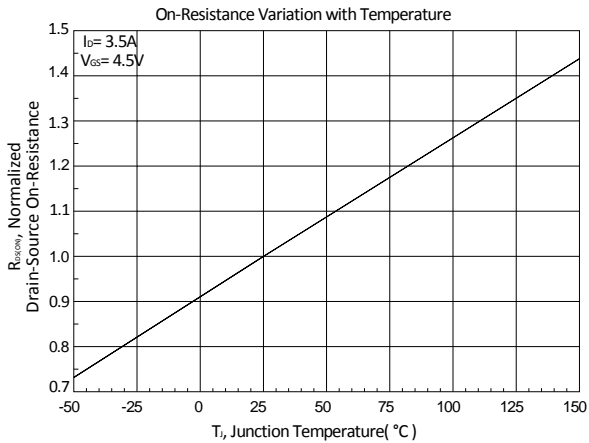
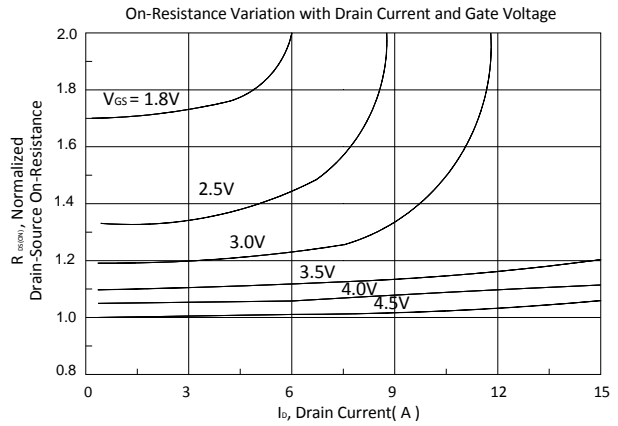
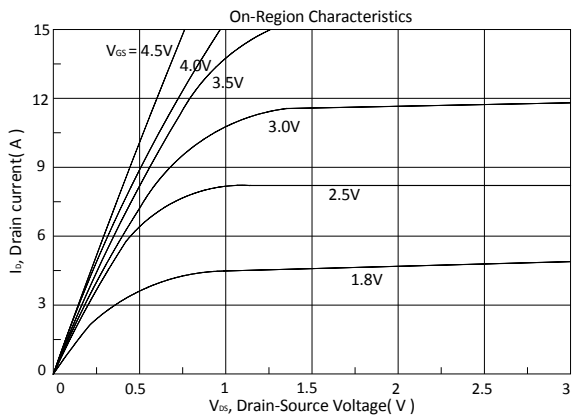
<sup>1</sup>Pulse test : Pulse Width  $\leq 300\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

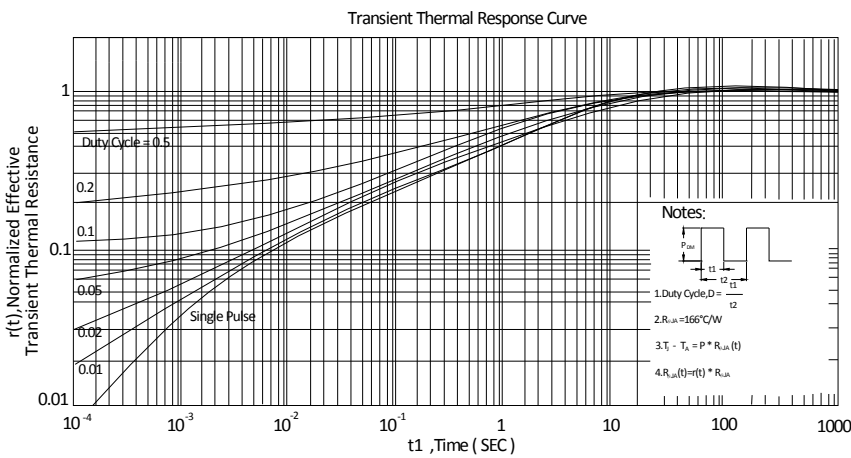
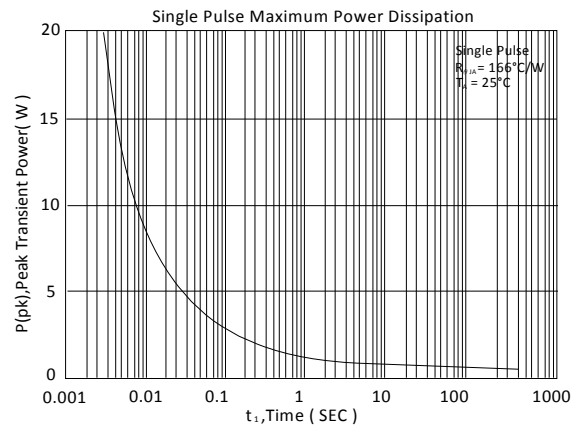
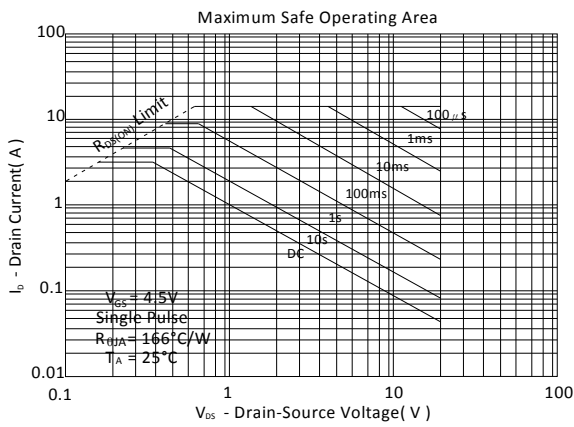
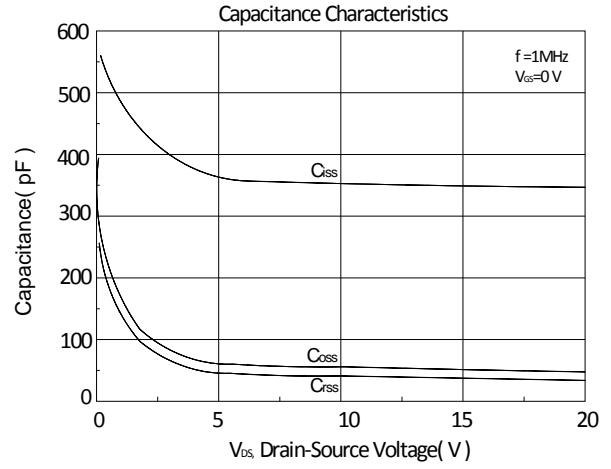
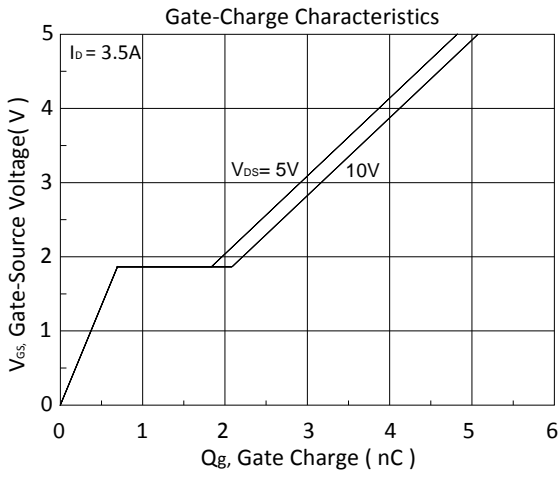
<sup>2</sup>Independent of operating temperature.

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



TYPICAL CHARACTERISTICS

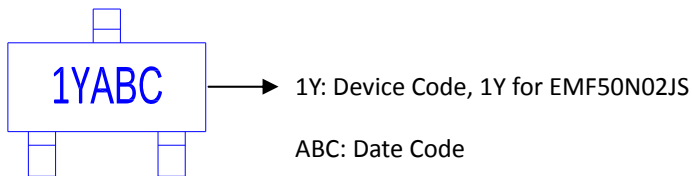




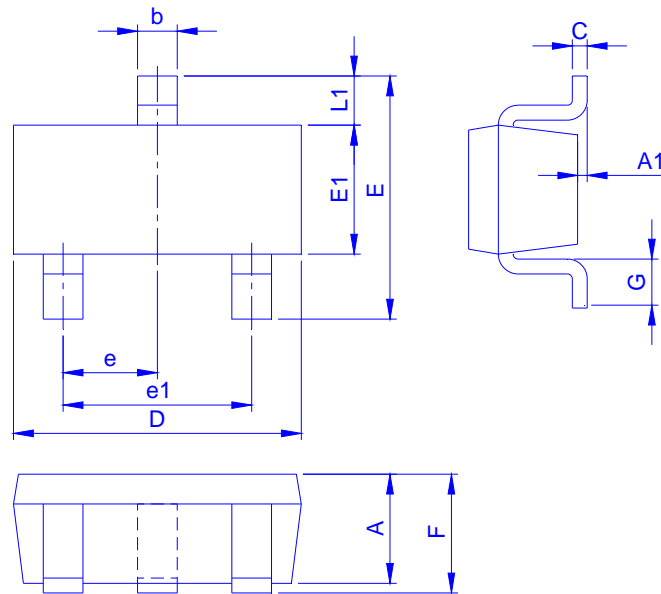


Ordering & Marking Information:

Device Name: EMF50N02JS for SOT-23



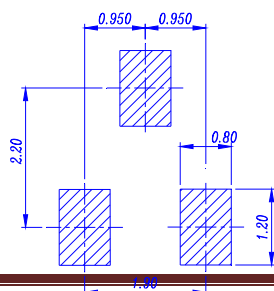
Outline Drawing



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





杰力科技股份有限公司  
*Excelliance MOS Corporation*

EMF50N02JS