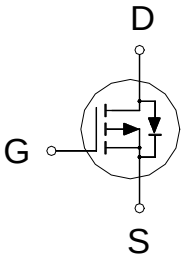
杰力科技股份有限公司
Excelliance MOS Corporation

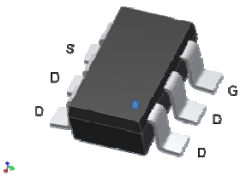
EMB50P03K

P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-30V
$R_{DSON\ (MAX.)}$	50mΩ
I_D	-5A





Pb-Free Lead Plating & Halogen Free

GP
GREEN PRODUCT

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_A = 25 °C	I_D	-5	A
	T_A = 70 °C		-4.2	
Pulsed Drain Current[1]		I_{DM}	-20	
Power Dissipation	T_A = 25 °C	P_D	1.92	W
	T_A = 70 °C		1.23	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Ambient[3]	$R_{\theta JA}$ (T ≤ 10sec)		65	°C / W
	$R_{\theta JA}$ (Steady State)		100	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

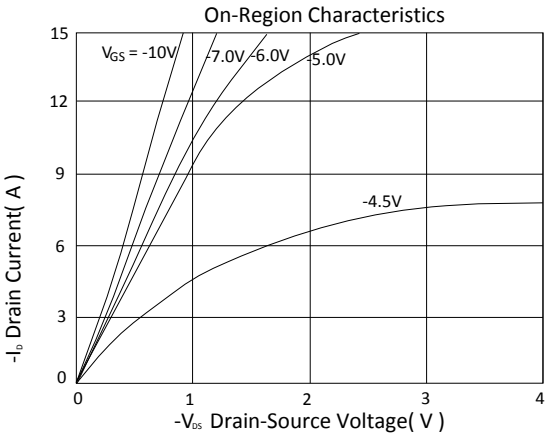
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1	-1.5	-3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	μA
		V_{DS} = -20V, V_{GS} = 0V, T_J = 125 °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		42	50	mΩ
		V_{GS} = -4.5V, I_D = -4A		66	85	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -5A		9		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		820		pF
Output Capacitance	C_{oss}			122		
Reverse Transfer Capacitance	C_{rss}			97		
Total Gate Charge[1,2]	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -5A		9		nC
Gate-Source Charge[1,2]	Q_{gs}			2.2		
Gate-Drain Charge[1,2]	Q_{gd}			2.5		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_{GS} = 6Ω		12		nS
Rise Time[1,2]	t_r			16		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			34		
Fall Time[1,2]	t_f			20		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				-3	A
Pulsed Current[3]	I_{SM}				-12	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			-1.2	V

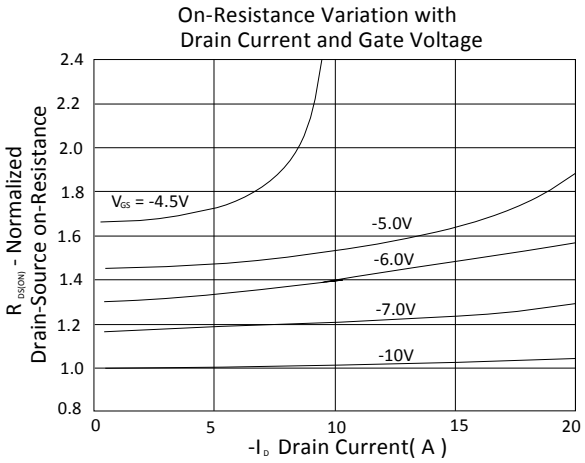
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

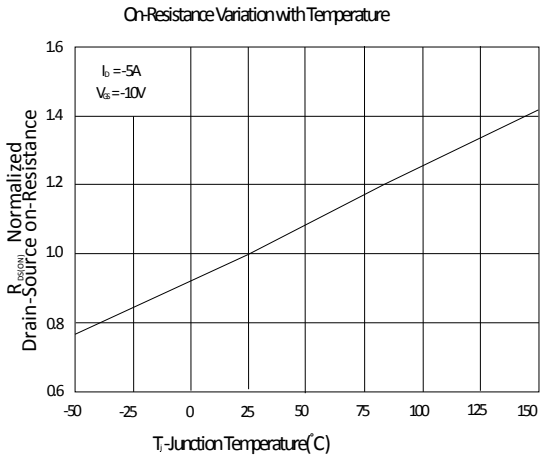
[2]Independent of operating temperature.

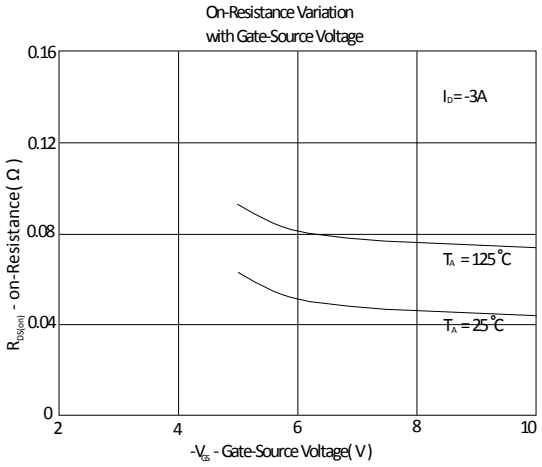
[3]Pulse width limited by maximum junction temperature.

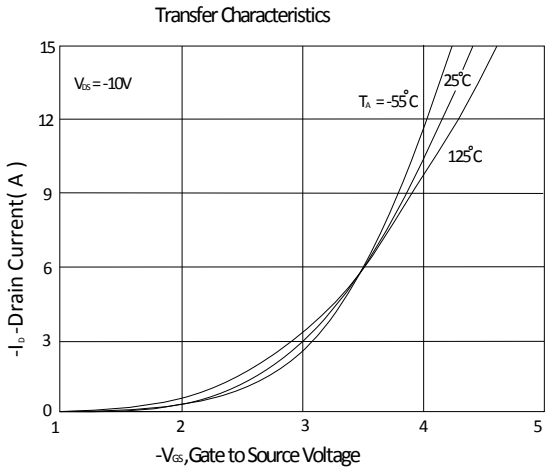
TYPICAL CHARACTERISTICS

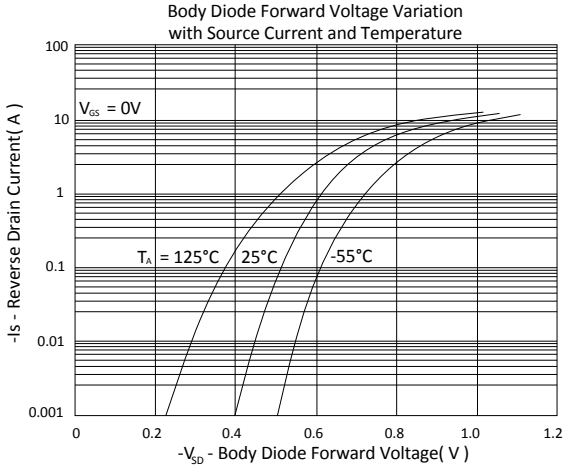




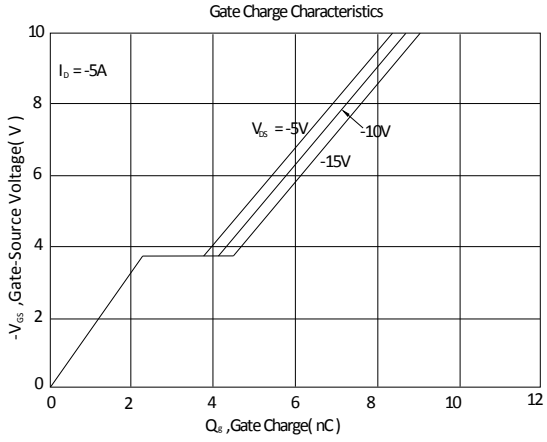




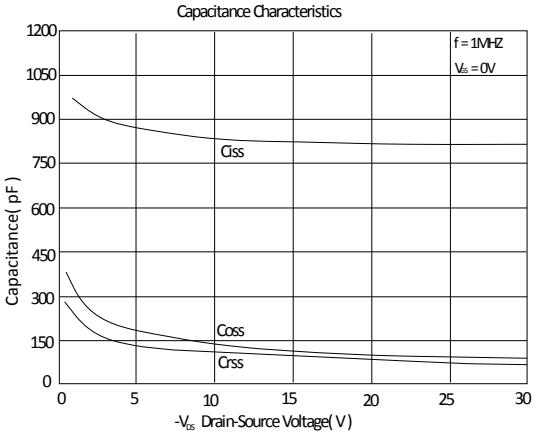




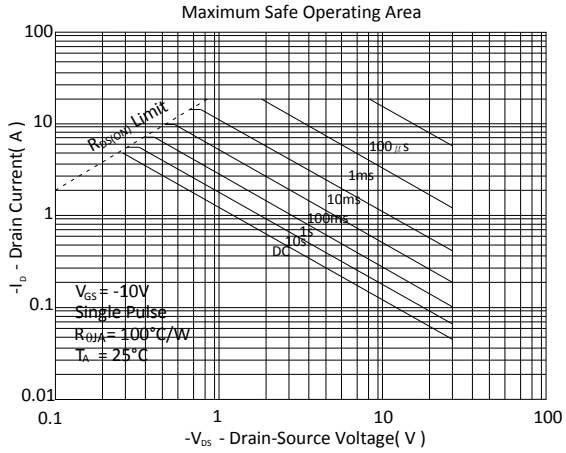
Gate Charge Characteristics



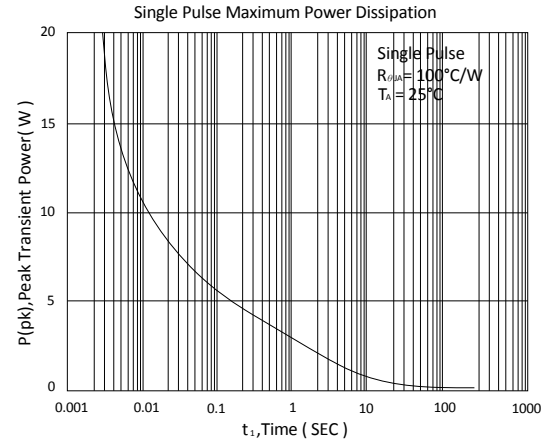
Capacitance Characteristics



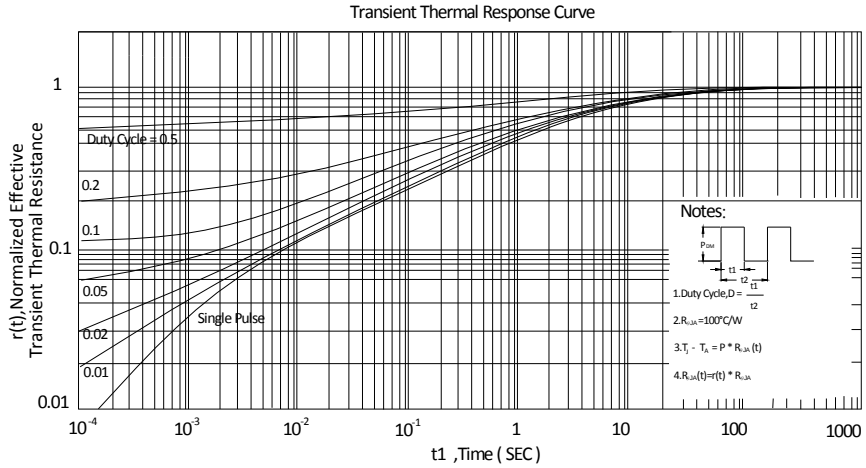
Maximum Safe Operating Area



Single Pulse Maximum Power Dissipation

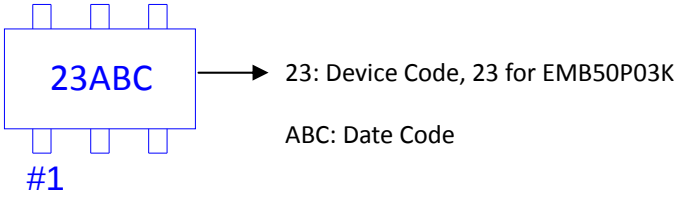


Transient Thermal Response Curve

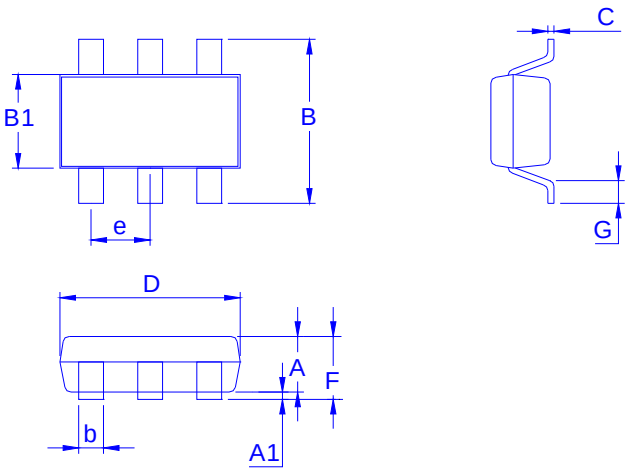


Ordering & Marking Information:

Device Name: EMB50P03K for TSOP-6



Outline Drawing



Dimension in mm

Dimension	A	A1	B	B1	b	C	D	e	F	G
Min.	0.70	0	2.50	1.50	0.30	0.08	2.70		0.70	0.30
Typ.	0.95		2.80	1.60	0.40		2.90	0.95		
Max.	1.00	0.10	3.10	1.70	0.50	0.20	3.10		1.10	0.60

Footprint