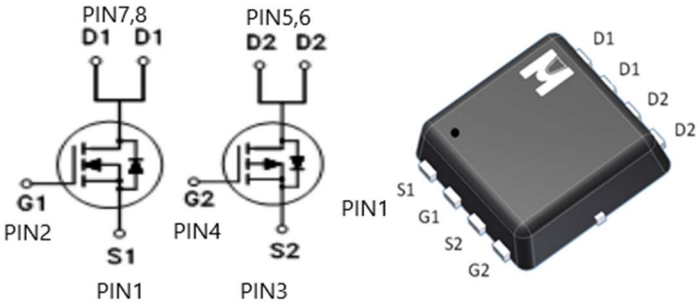
杰力科技股份有限公司
Excelliance MOS Corporation

EMB32C03V

N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

	N-CH	P-CH
BV_{DSS}	30V	-30V
$R_{DSON\ (MAX.)}$ @V_{GS}=10V	32mΩ	55mΩ
$R_{DSON\ (MAX.)}$ @V_{GS}=4.5V	45mΩ	85mΩ
I_D@T_A=25°C	6A	-5A



N+P Channel MOSFET

UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS		UNIT
Gate-Source Voltage		V_{GS}	N-CH	P-CH	V
			±20	±20	
Continuous Drain Current	T_A = 25 °C	I_D	6	-5	A
	T_A = 100 °C		4	-3	
Pulsed Drain Current[1]		I_{DM}	24	-20	
Avalanche Current		I_{AS}	15	22	
Avalanche Energy	L = 0.1mH	E_{AS}	11	24	mJ
Repetitive Avalanche Energy[2]	L = 0.05Mh	E_{AR}	5.6	12	
Power Dissipation	T_A = 25 °C	P_D	2.3		W
	T_A = 100 °C		0.9		
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		7.5	°C / W
Junction-to-Ambient[3]	$R_{\theta JA}$		55	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

[3]55°C / W when mounted on a 1 in^2 pad of 2 oz copper.

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	N-CH	30			V
		V_{GS} = 0V, I_D = -250μA	P-CH	-30			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	N-CH	1.0	1.5	3.0	
		V_{DS} = V_{GS}, I_D = -250μA	P-CH	-1.0	-1.5	-3.0	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	N-CH			±100	nA
		V_{DS} = 0V, V_{GS} = ±20V	P-CH			±100	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V	N-CH			1	μA
		V_{DS} = -24V, V_{GS} = 0V	P-CH			-1	
		V_{DS} = 20V, V_{GS} = 0V, T_J = 125 °C	N-CH			10	
		V_{DS} = -20V, V_{GS} = 0V, T_J = 125 °C	P-CH			-10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	N-CH	6			A
		V_{DS} = -5V, V_{GS} = -10V	P-CH	-5			
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 5.5A	N-CH		29	32	mΩ
		V_{GS} = -10V, I_D = -6A	P-CH		45	55	
		V_{GS} = 4.5V, I_D = 2A	N-CH		39	45	
		V_{GS} = -4.5V, I_D = -5A	P-CH		70	85	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 7A	N-CH		11		S
		V_{DS} = -5V, I_D = -6A	P-CH		16		
DYNAMIC							
Input Capacitance	C_{iss}	N-CH	N-CH		332		pF
		V_{GS} = 0V, V_{DS} = 15V, f = 1MHz	P-CH		820		
Output Capacitance	C_{oss}	P-CH	N-CH		83		
		V_{GS} = 0V, V_{DS} = -15V, f = 1MHz	P-CH		122		
Reverse Transfer Capacitance	C_{rss}		N-CH		25		
			P-CH		97		
Gate Resistance	R_g	V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz	N-CH		2.0		Ω
			P-CH		4.0		
Total Gate Charge[1,2]	Q_g	N-CH	N-CH		7.5		
		V_{DS} = 15V, V_{GS} = 10V,	P-CH		9		

Gate-Source Charge[1,2]	Q_{gs}	I_D = 7A P-CH V_{DS} = -15V, V_{GS} = -10V, I_D = -6A	N-CH		1.1		nC
			P-CH		2.2		
Gate-Drain Charge[1,2]	Q_{gd}		N-CH		2.3		
			P-CH		2.5		
Turn-On Delay Time[1,2]	$t_{d(on)}$	N-CH V_{DS} = 15V, I_D = 1A, V_{GS} = 10V, R_{GS} = 6Ω P-CH V_{DS} = -10V, I_D = -1A, V_{GS} = -10V, R_{GS} = 6Ω	N-CH		8		nS
			P-CH		5.5		
Rise Time[1,2]	t_r		N-CH		12		
			P-CH		10		
Turn-Off Delay Time[1,2]	$t_{d(off)}$		N-CH		28		
			P-CH		18		
Fall Time[1,2]	t_f		N-CH		15		
			P-CH		15		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)							
Continuous Current	I_S		N-CH			6	A
			P-CH			-5	
Pulsed Current[3]	I_{SM}		N-CH			24	
			P-CH			-20	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V	N-CH			1.3	V
			P-CH			-1.3	

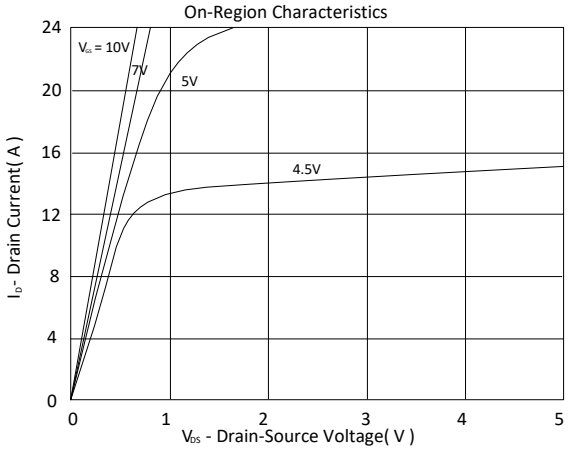
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

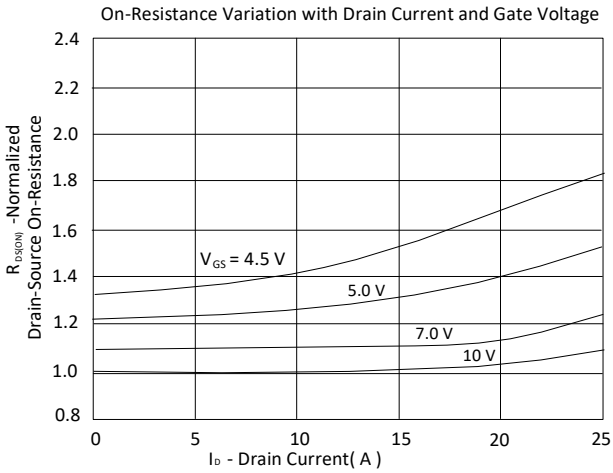
[2]Independent of operating temperature.

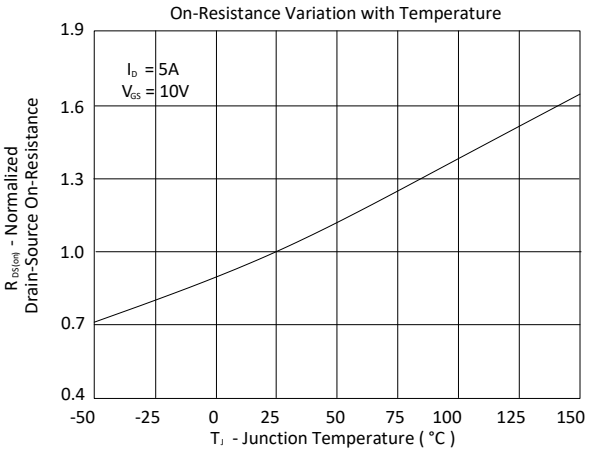
[3]Pulse width limited by maximum junction temperature.

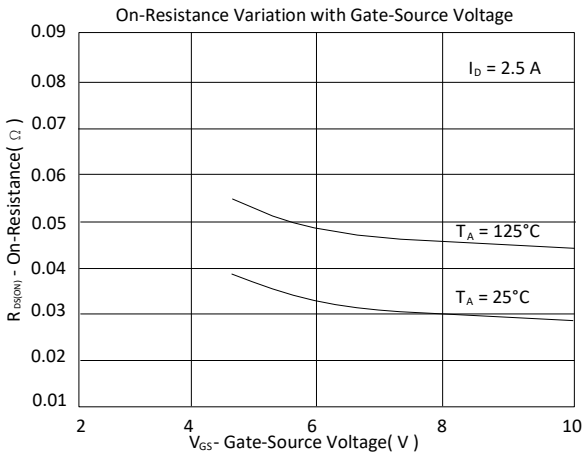
EMC will review datasheet by quarter, and update new version.

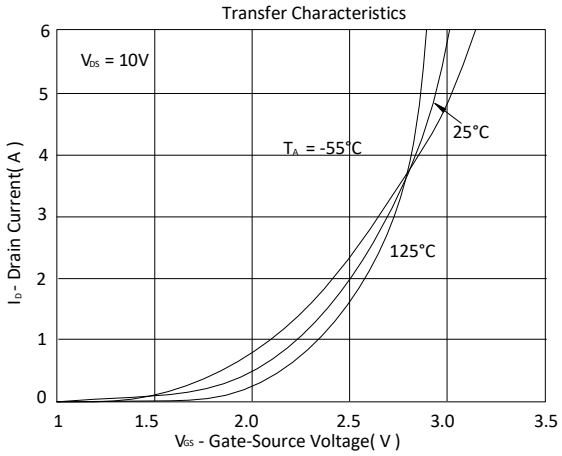
TYPICAL CHARACTERISTICS

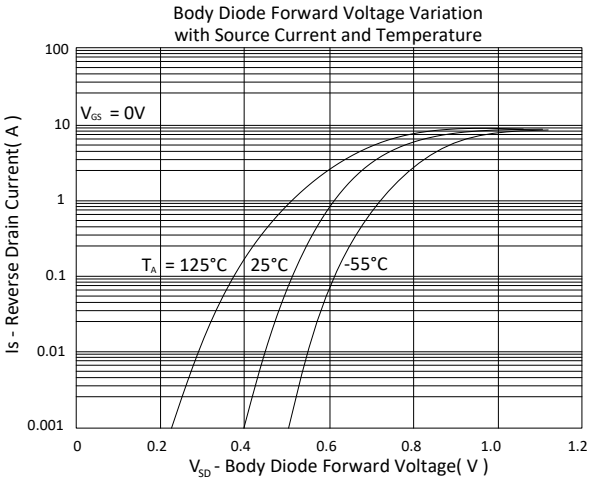




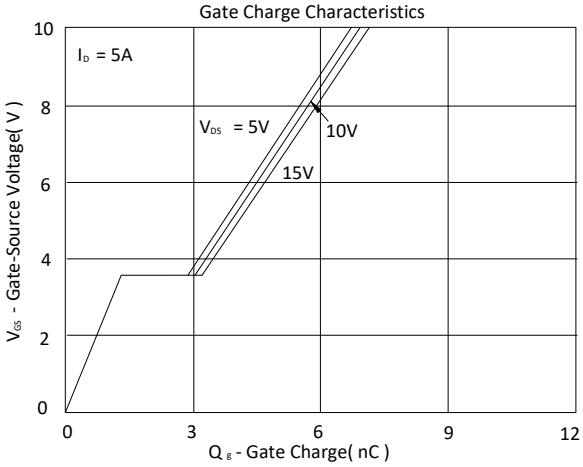




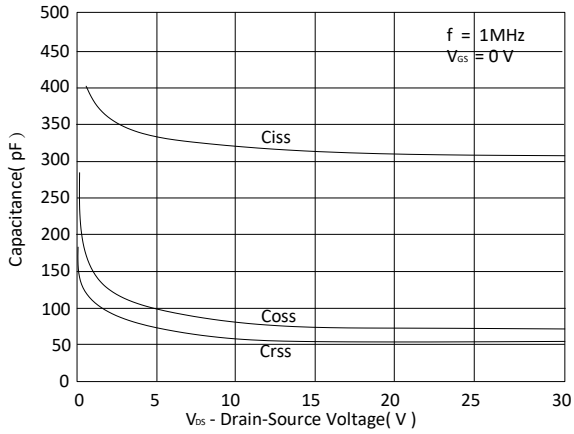




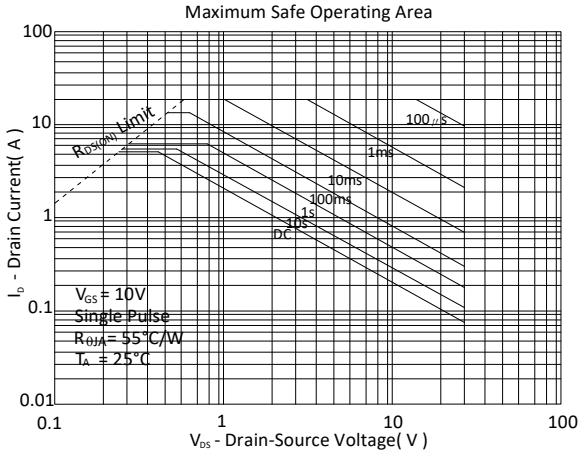
Gate Charge Characteristics



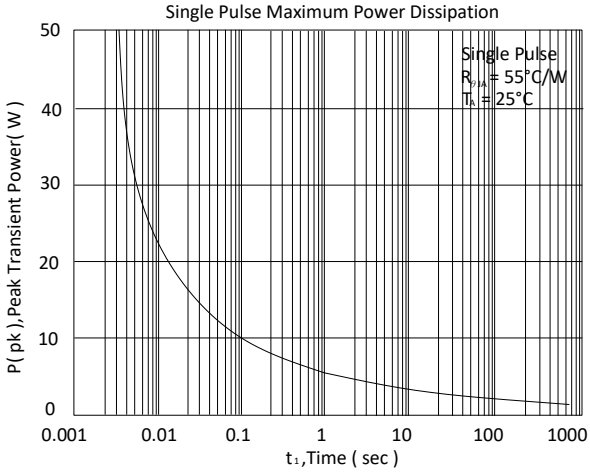
Capacitance Characteristics



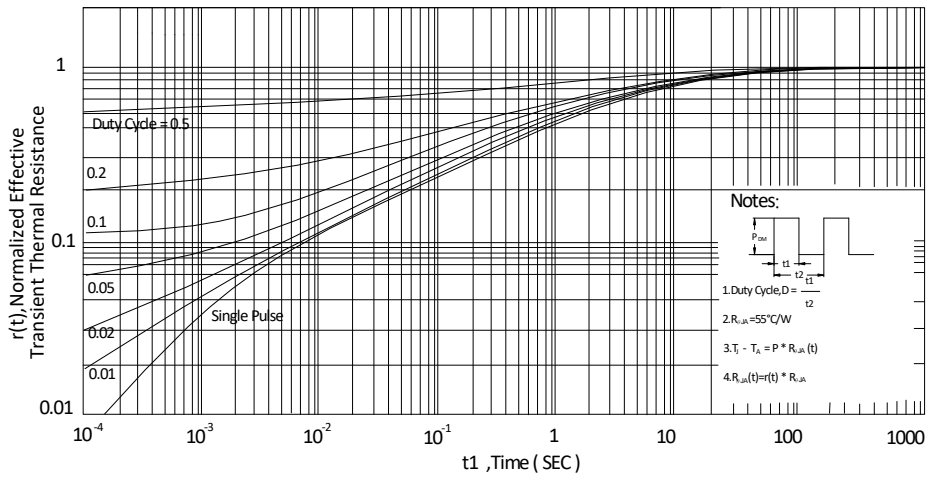
Maximum Safe Operating Area



Single Pulse Maximum Power Dissipation

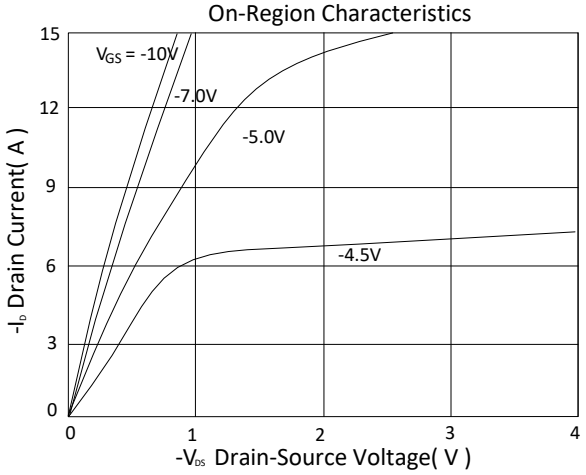


Transient Thermal Response Curve

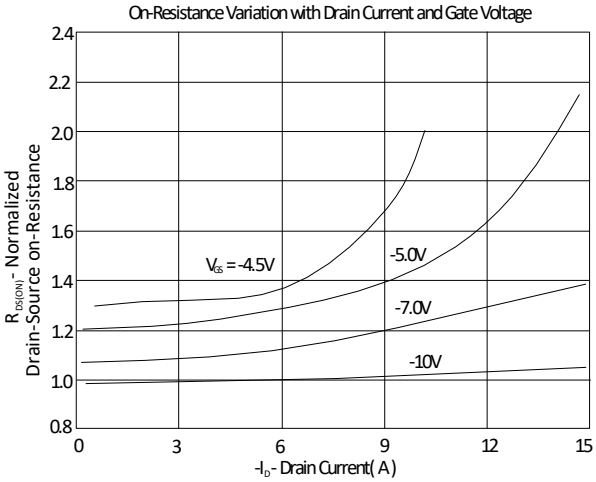


TYPICAL CHARACTERISTICS

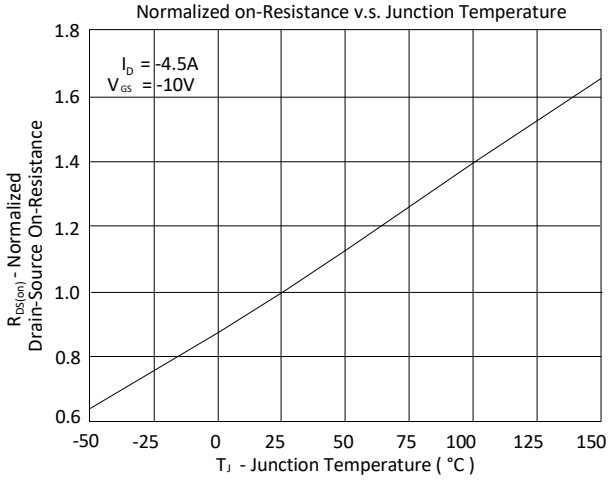
On-Region Characteristics



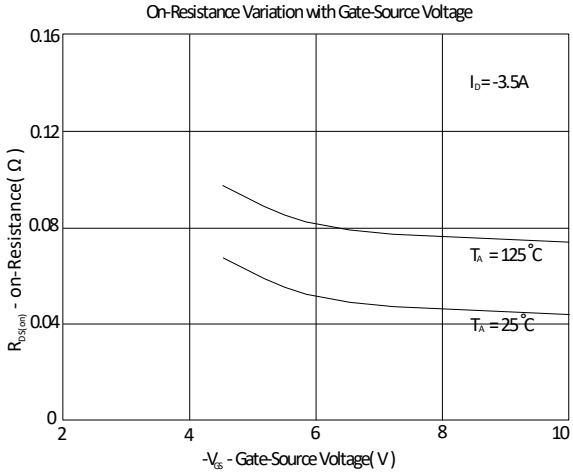
On-Resistance Variation with Drain Current and Gate Voltage



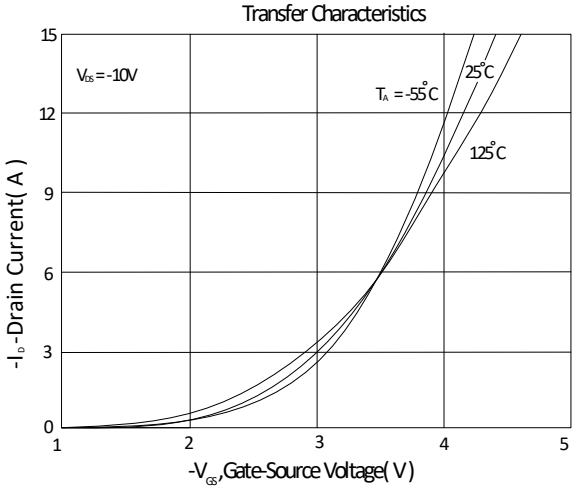
Normalized on-Resistance v.s. Junction Temperature



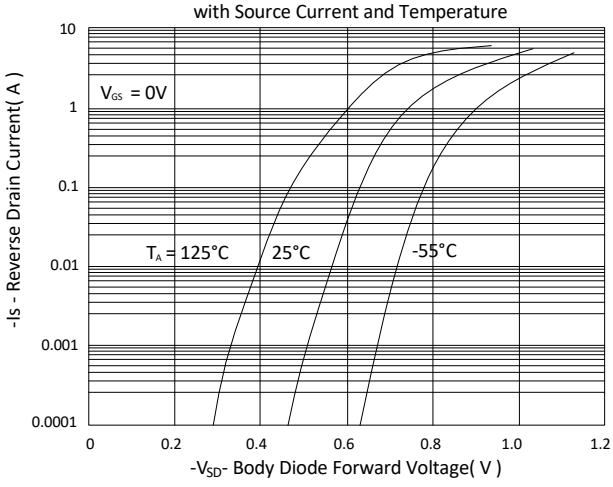
On-Resistance Variation with Gate-Source Voltage



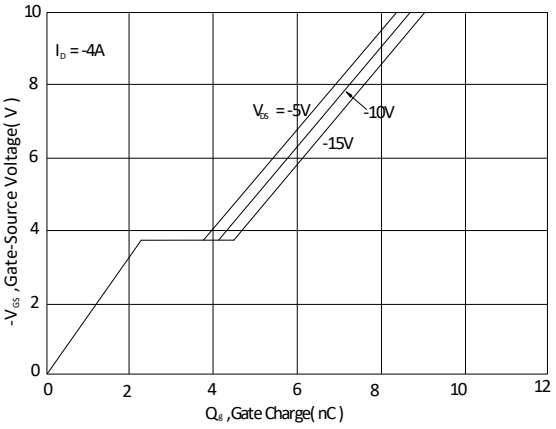
Transfer Characteristics



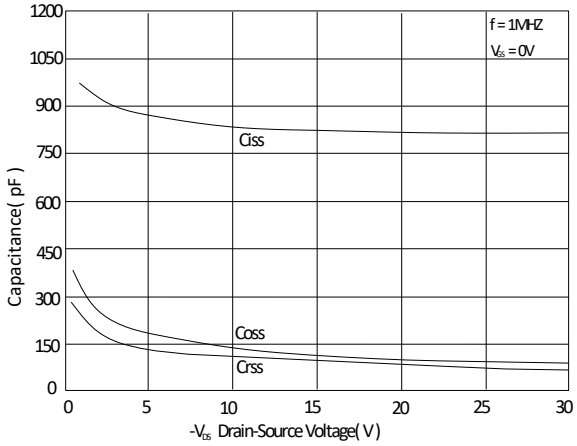
Body Diode Forward Voltage Variation with Source Current and Temperature



Gate Charge Characteristics



Capacitance Characteristics



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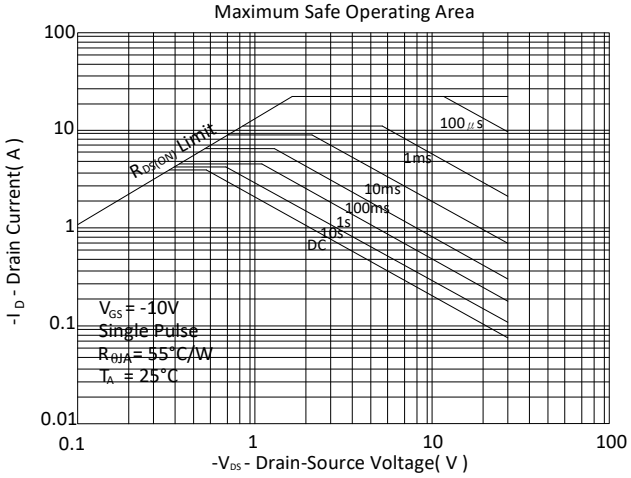
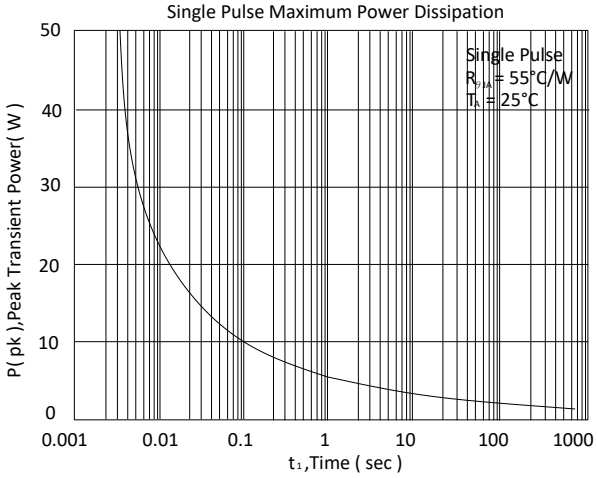
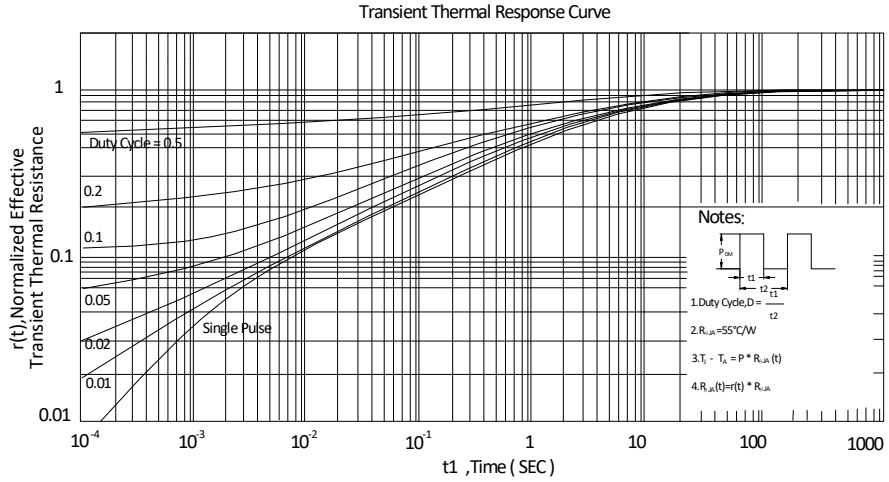


Single Pulse Maximum Power Dissipation

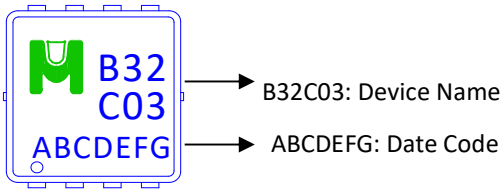


Transient Thermal Response Curve

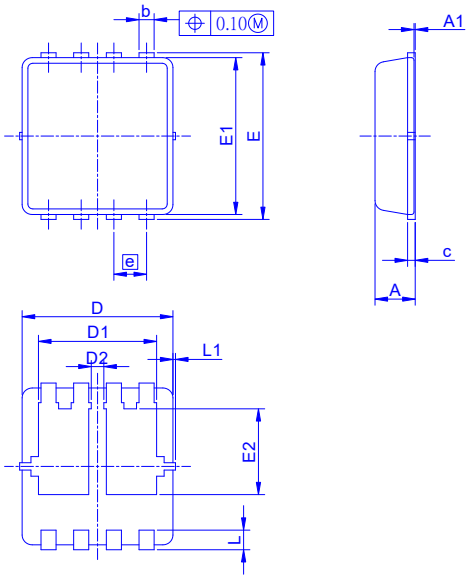


Ordering & Marking Information:

Device Name: EMB32C03V for EDFN3X3



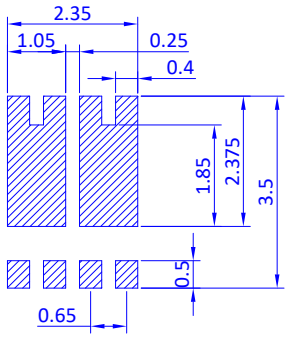
Outline Drawing



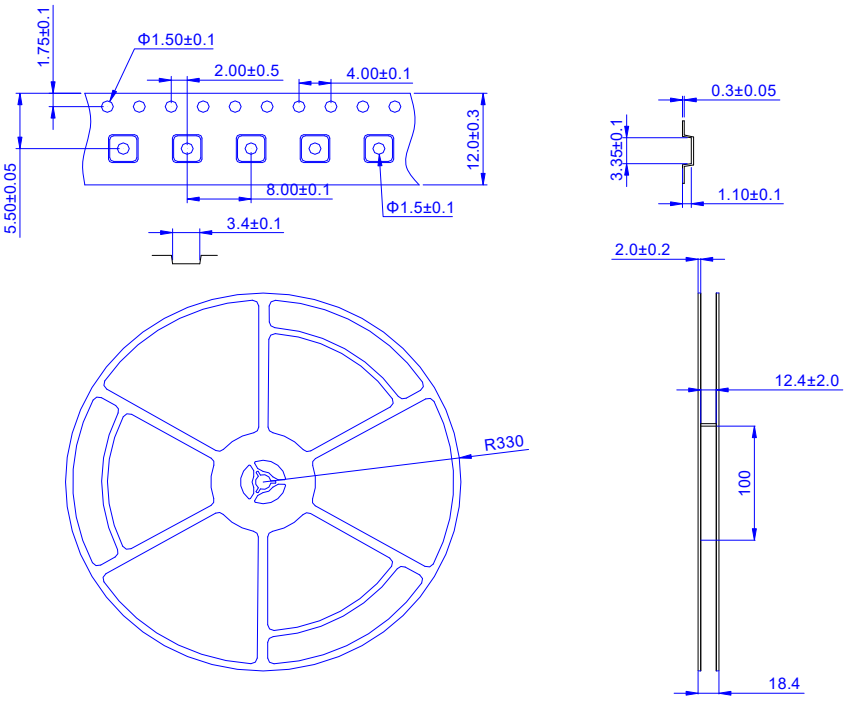
Dimension in mm

Dimension	A	A1	b	c	D	D1	D2	E	E1	E2	e	L	L1	θ1
Min.	0.65	0	0.20	0.10	2.90	2.15	0.28	3.10	2.90	1.53	0.55	0.30	-	0°
Typ.	0.75	-	0.30	0.15	3.00	2.47	0.38	3.20	3.00	1.81	0.65	0.40	0.075	10°
Max.	0.90	0.05	0.40	0.25	3.30	2.75	-	3.50	3.30	1.98	0.75	0.50	0.150	14°

Recommended minimum pads



Tape&Reel Information: 5000pcs/Reel



產品別	EDFN3X3
Reel 尺寸	13”
編帶方式	FEED DIRECTION
前空格	50
後空格	50
裝箱數	
滿捲數量	5K
捲/內盒比	1 : 1
內盒滿箱數	5K
內/外箱比	10 : 1
外箱滿箱數	50K