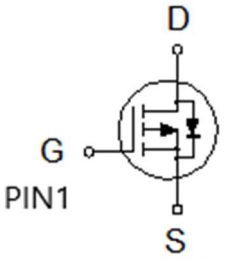
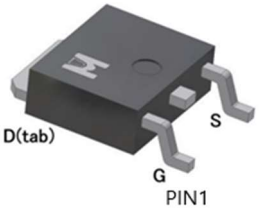
P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-40V
$R_{DSON\ (MAX.)}$	44mΩ
I_D	-25A





P Channel MOSFET

UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	-25	A
	T_C = 100 °C		-16	
Pulsed Drain Current[1]		I_{DM}	-100	
Avalanche Current		I_{AS}	-23	
Avalanche Energy	L = 0.1mH	E_{AS}	26	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	13	
Power Dissipation	T_C = 25 °C	P_D	50	W
	T_C = 100 °C		20	
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	$R_{\theta JC}$		2.5	°C / W
Junction-to-Ambient	$R_{\theta JA}$		75	

[1]Pulse width limited by maximum junction temperature.

[2]Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_C = 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	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1	-2	-3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -32V, V_{GS} = 0V			-1	μA
		V_{DS} = -30V, V_{GS} = 0V, T_J = 125 °C			-25	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = -5V, V_{GS} = -4.5V	-25			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -10A		38	44	mΩ
		V_{GS} = -4.5V, I_D = -6A		60	75	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -10A		11		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -20V, f = 1MHz		745		pF
Output Capacitance	C_{oss}			78		
Reverse Transfer Capacitance	C_{rss}			58		
Gate Resistance	R_g	V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz		5.8		Ω
Total Gate Charge[1,2]	Q_g	V_{DS} = -10V, V_{GS} = -10V, I_D = -6A		11.5		nC
Gate-Source Charge[1,2]	Q_{gs}			2.5		
Gate-Drain Charge[1,2]	Q_{gd}			2.8		
Turn-On Delay Time[1,2]	$t_{d(on)}$	V_{DS} = -10V, I_D = -1A, V_{GS} = -10V, R_{GS} = 6Ω		7		nS
Rise Time[1,2]	t_r			10		
Turn-Off Delay Time[1,2]	$t_{d(off)}$			20		
Fall Time[1,2]	t_f			12		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				-20	A
Pulsed Current[3]	I_{SM}				-80	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.3	V
Reverse Recovery Time	t_{rr}	I_F = -5A, dI_F/dt = 100A / μS		15		nS
Reverse Recovery Charge	Q_{rr}			8		nC

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

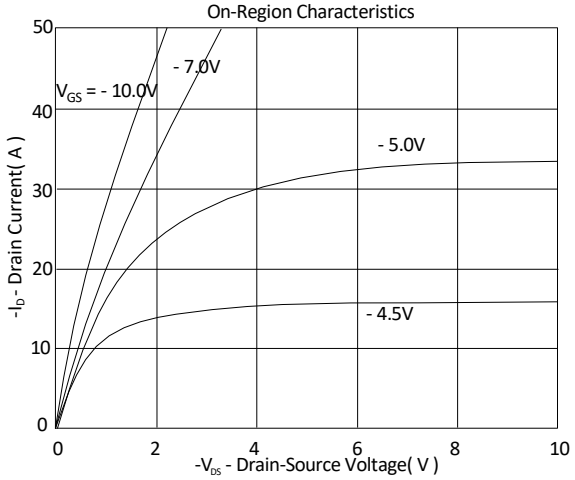
[2]Independent of operating temperature.

[3]Pulse width limited by maximum junction temperature.

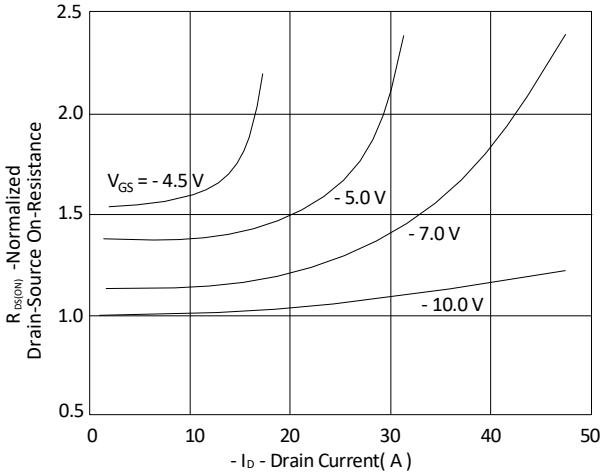
EMC will review datasheet by quarter, and update new version.

TYPICAL CHARACTERISTICS

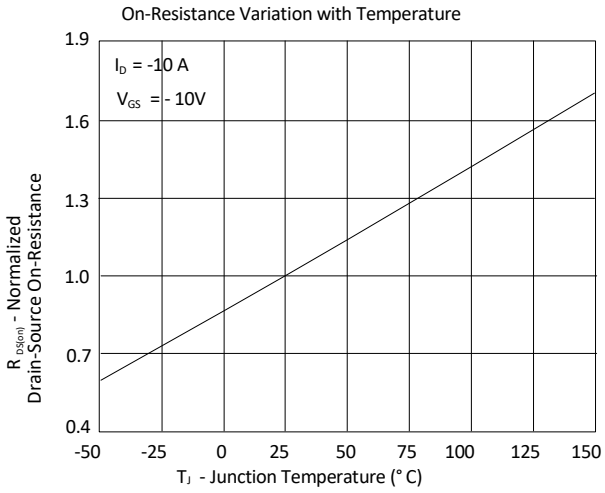
On-Region Characteristics



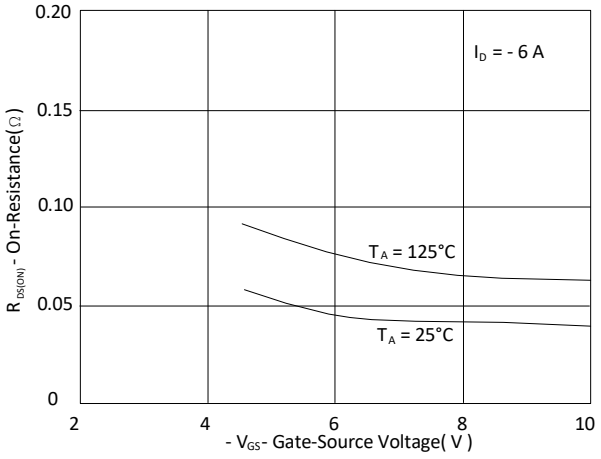
On-Resistance Variation with Drain Current and Gate Voltage



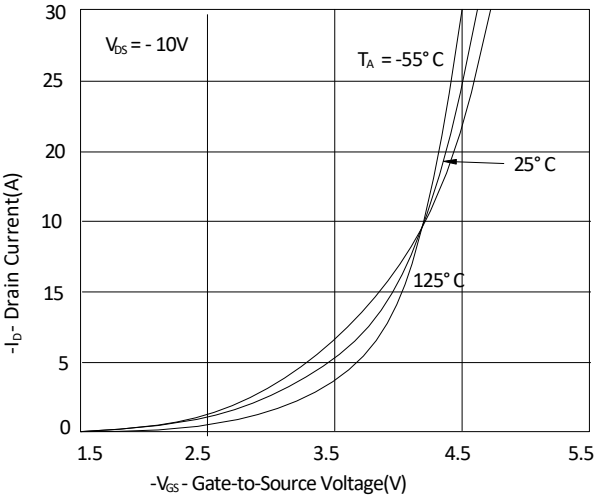
On-Resistance Variation with Temperature



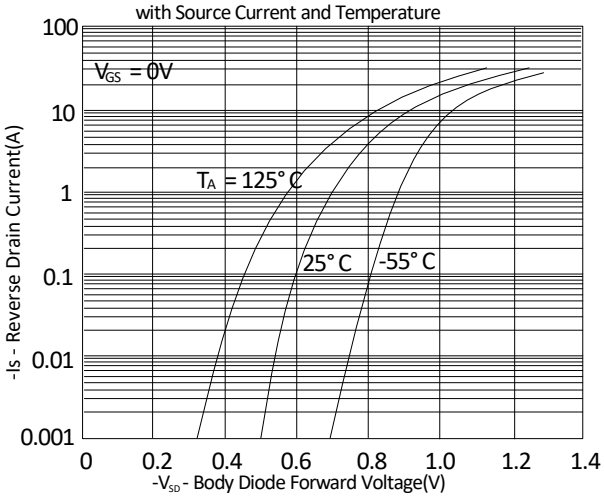
On-Resistance Variation with Gate-Source Voltage



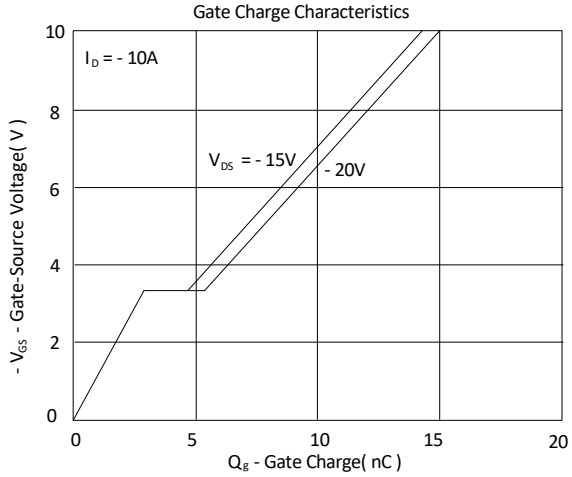
Transfer Characteristics



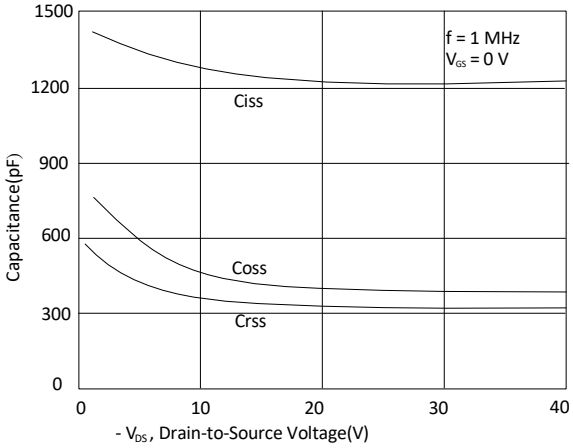
Body Diode Forward Voltage Variation with Source Current and Temperature



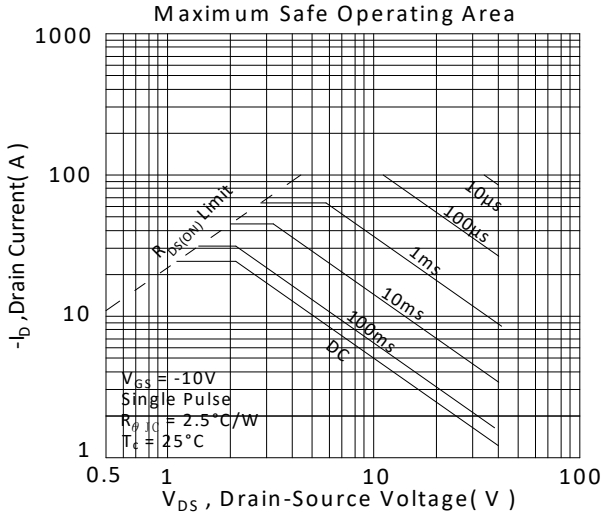
Gate Charge Characteristics



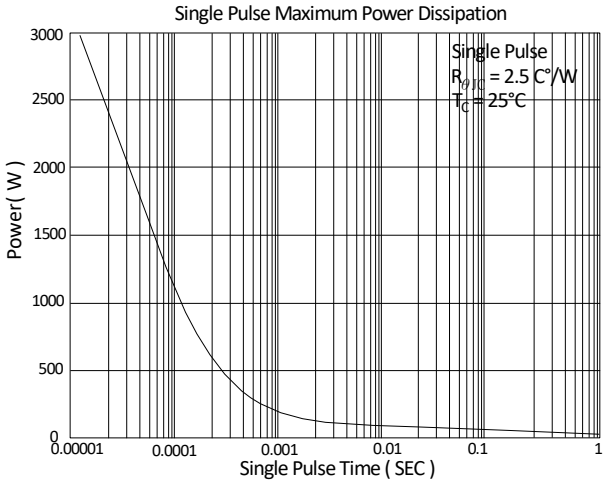
Capacitance Characteristics



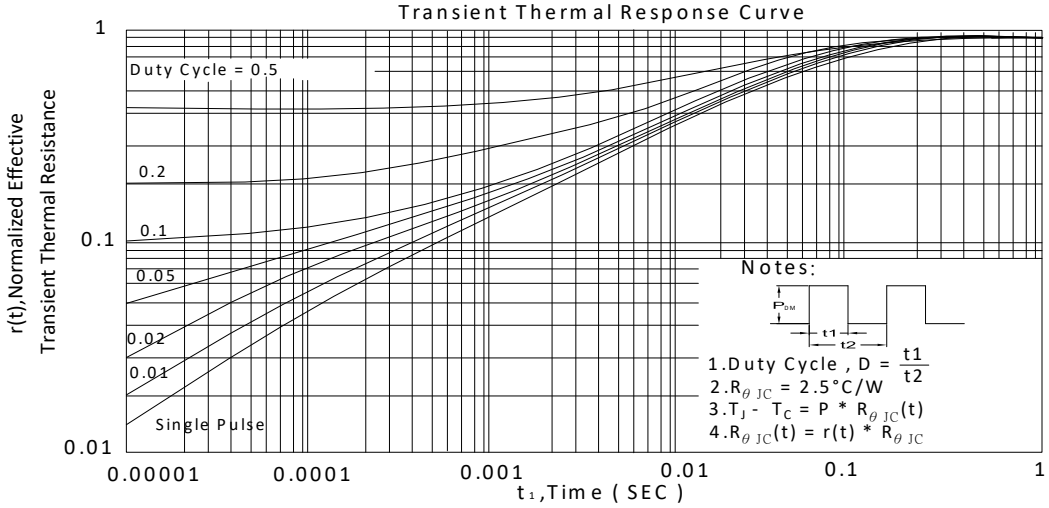
Maximum Safe Operating Area



Single Pulse Maximum Power Dissipation

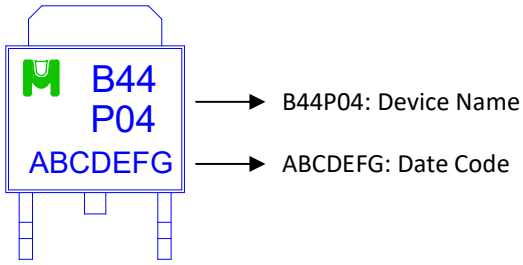


Transient Thermal Response Curve

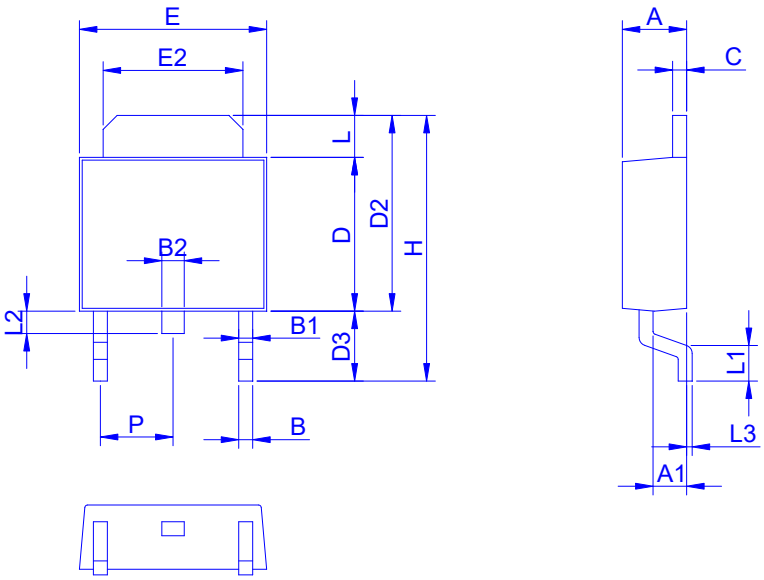


Ordering & Marking Information:

Device Name: EMB44P04A for DPAK (TO-252)

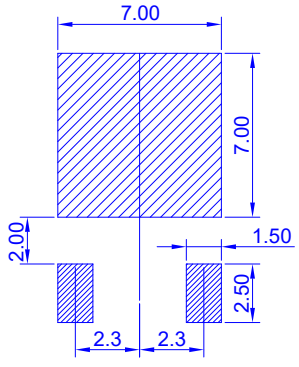


Outline Drawing

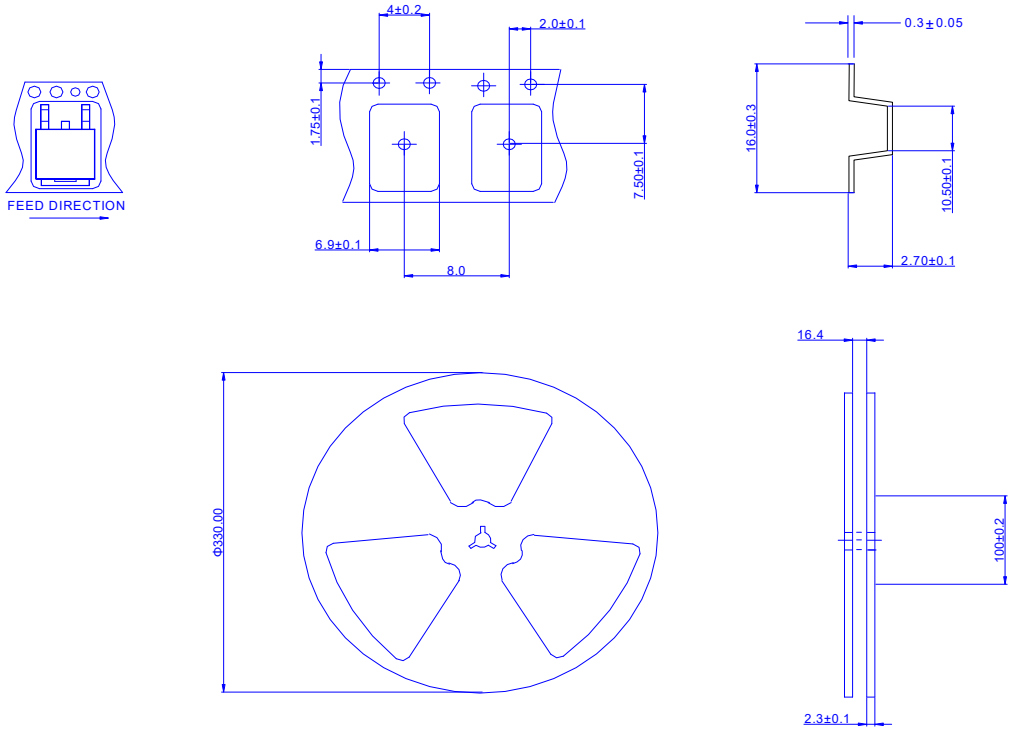


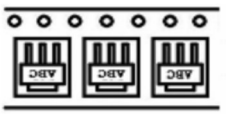
Dimension	A	A1	B	B1	B2	C	D	D2	D3	E	E2	H	L	L1	L2	L3	P
Min.	2.10	0.95	0.30	0.40	0.60	0.40	5.30	6.70	2.20	6.40	4.80	9.20	0.89	0.90	0.50	0.00	2.10
Max.	2.50	1.30	0.85	0.94	1.00	0.60	6.20	7.30	3.00	6.70	5.45	10.15	1.70	1.65	1.10	0.30	2.50

Footprint



◆ Tape&Reel Information:2500pcs/Reel(Dimension in millimeter)



產品別	TO252-2
Reel 尺寸	13”
編帶方式	FEED DIRECTION 
前空格	35
後空格	35
裝箱數	
滿捲數量	2.5K
捲/內盒比	1：1
內盒滿箱數	2.5K
內/外箱比	10：1
外箱滿箱數	25K