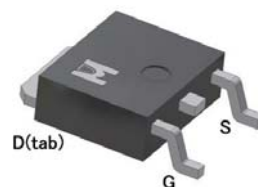
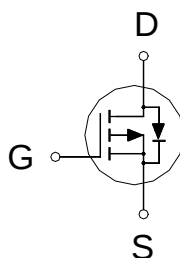


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV_{DSS}	-30V
$R_{DS(on)} (MAX.)$	20m Ω
I_D	-35A



UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS ($T_C = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V_{GS}	± 25	V
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	-35	A
	$T_C = 100\text{ }^{\circ}\text{C}$		-26	
Pulsed Drain Current ¹		I_{DM}	-70	
Avalanche Current		I_{AS}	-10	
Avalanche Energy	$L = 0.1\text{mH}$, $I_D = -10\text{A}$, $R_G = 25\text{ }\Omega$	E_{AS}	5	mJ
Repetitive Avalanche Energy ²	$L = 0.05\text{mH}$	E_{AR}	2.5	
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	42	W
	$T_A = 100\text{ }^{\circ}\text{C}$		16	
Operating Junction & Storage Temperature Range		$T_{j, T_{stg}}$	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	$R_{\theta JC}$		3	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient ³	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
		$V_{DS} = 0V, V_{GS} = \pm 25V$			± 500	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-35			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -20A$		17	20	m Ω
		$V_{GS} = -4.5V, I_D = -10A$		25	34	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -20A$		24		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		1407		pF
Output Capacitance	C_{oss}			208		
Reverse Transfer Capacitance	C_{rss}			164		
Gate Resistance	R_g	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$		4.5		Ω
Total Gate Charge ^{1,2}	$Q_g(V_{GS}=10V)$	$V_{DS} = -15V, V_{GS} = -10V,$ $I_D = -20A$		20.3		nC
	$Q_g(V_{GS}=4.5V)$			9.8		
Gate-Source Charge ^{1,2}	Q_{gs}			3.2		
Gate-Drain Charge ^{1,2}	Q_{gd}			4.9		
Turn-On Delay Time ^{1,2}	$t_{d(on)}$	$V_{DS} = -15V,$ $I_D = -1A, V_{GS} = -10V, R_{GS} = 2.7\Omega$		10		nS
Rise Time ^{1,2}	t_r			8		
Turn-Off Delay Time ^{1,2}	$t_{d(off)}$			25		
Fall Time ^{1,2}	t_f			6		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)						
Continuous Current	I_S				-35	A
Pulsed Current ³	I_{SM}				-70	
Forward Voltage ¹	V_{SD}	$I_F = -20A, V_{GS} = 0V$			-1.3	V
Reverse Recovery Time	t_{rr}	$I_F = I_S, dI_F/dt = 100A / \mu S$		32		nS
Reverse Recovery Charge	Q_{rr}			26		nC

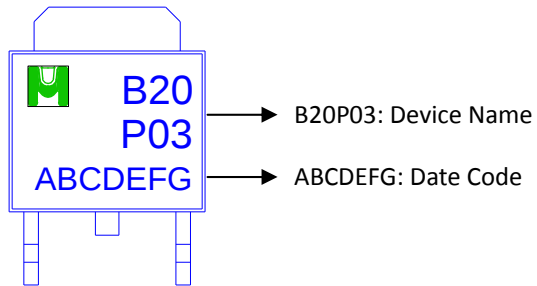
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

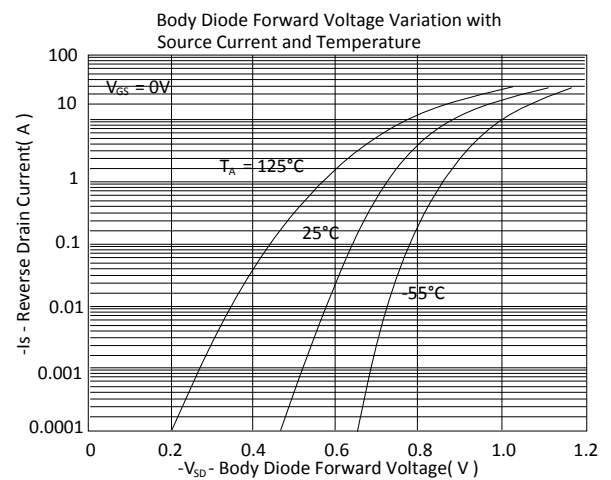
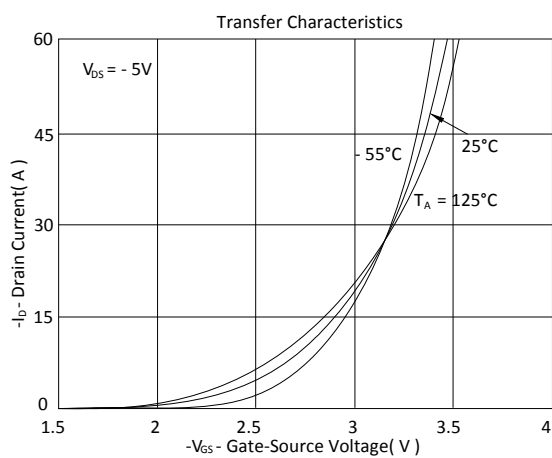
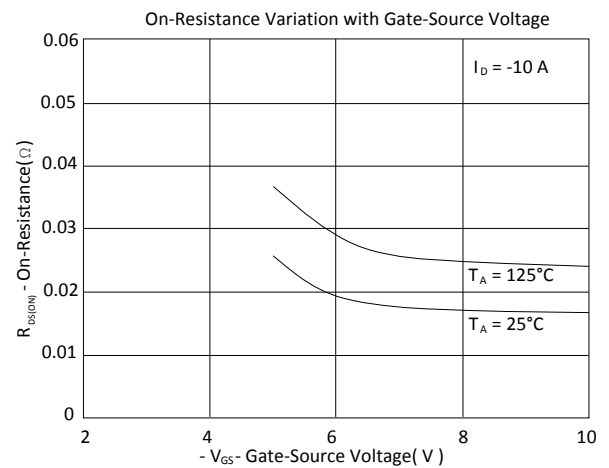
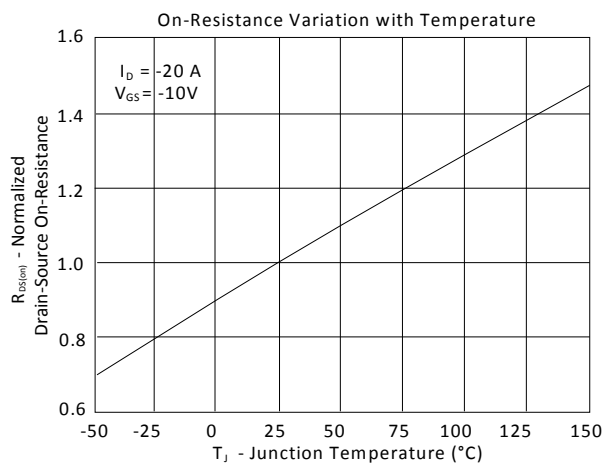
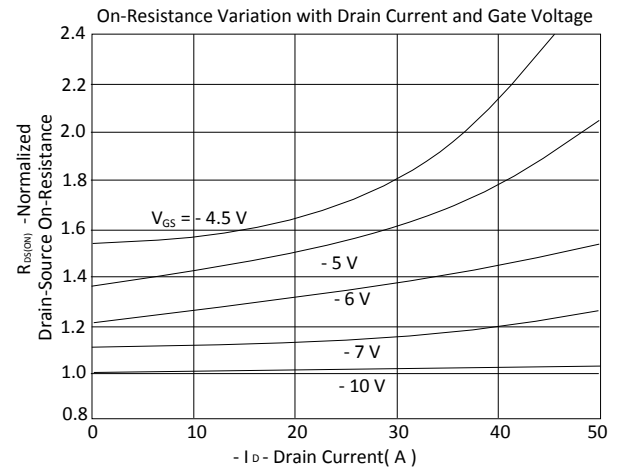
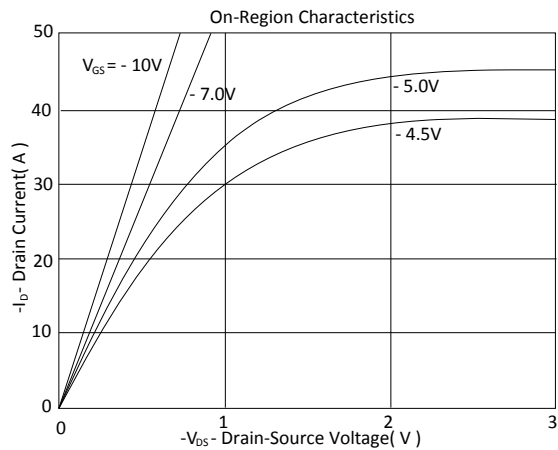
²Independent of operating temperature.

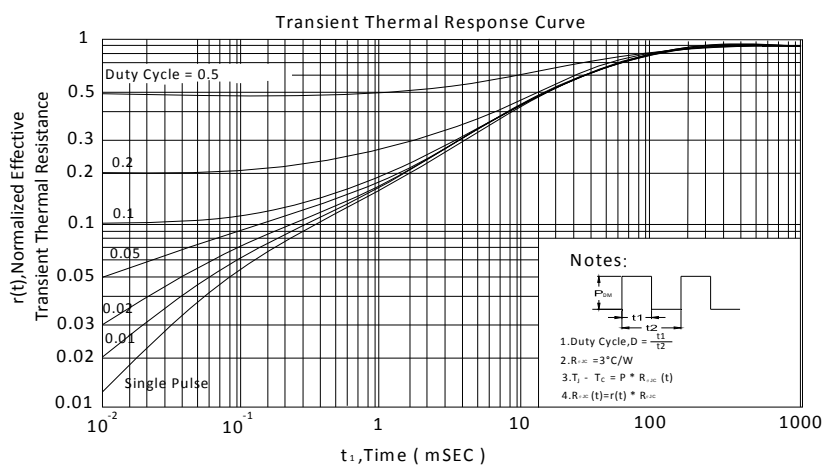
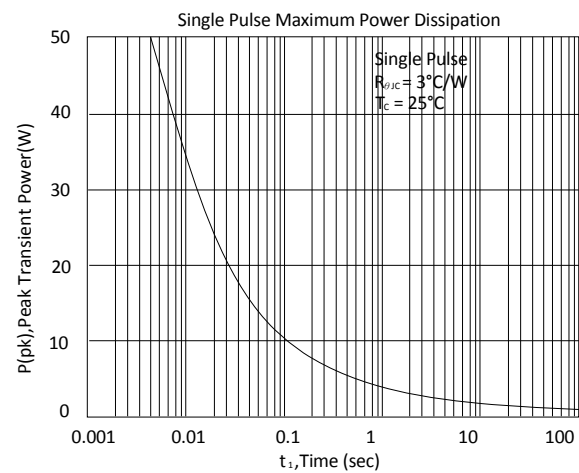
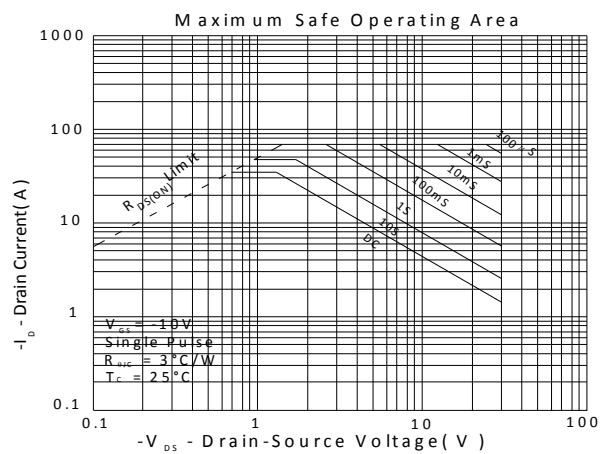
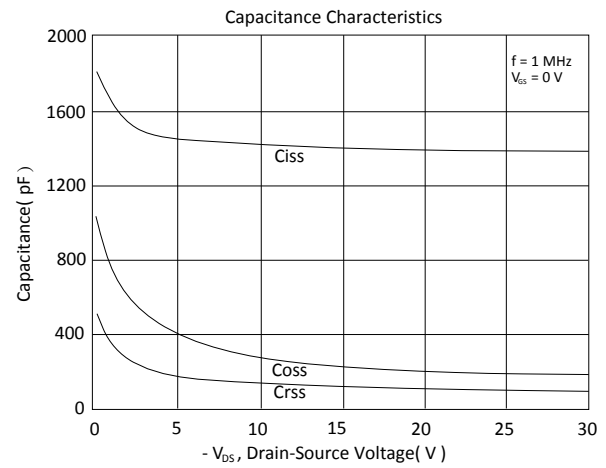
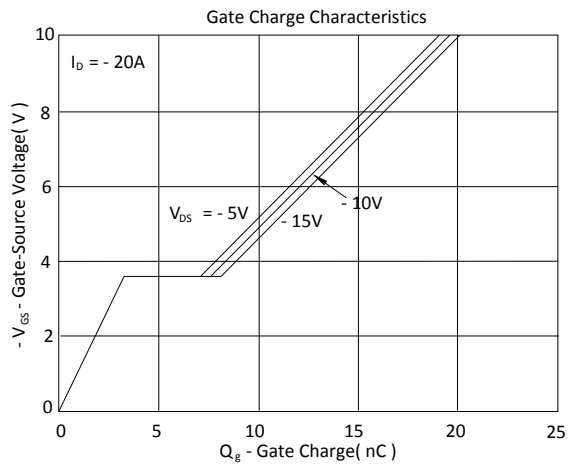
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

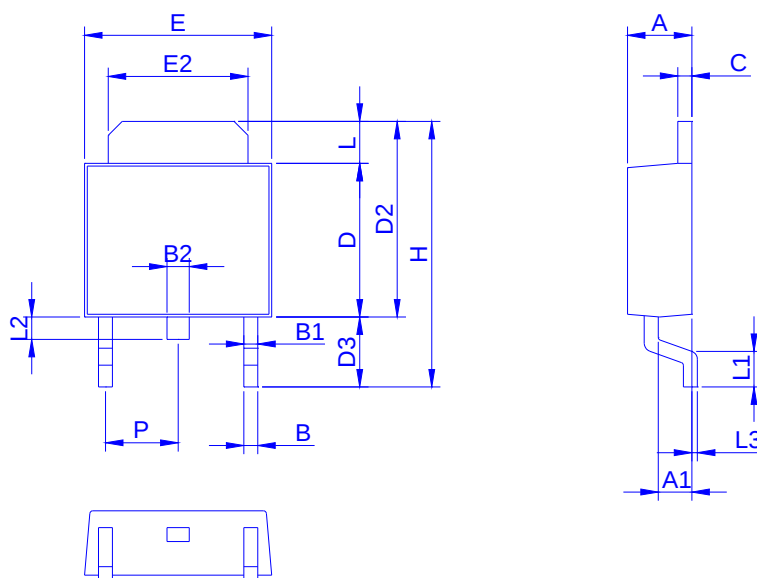
Device Name: EMB20P03A for DPAK(TO-252)







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

