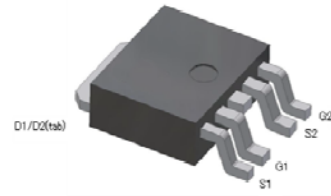
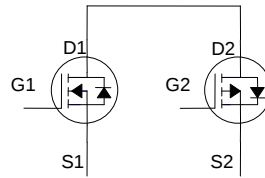


N & P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

	N-CH	P-CH
BV_{DSS}	60V	-60V
$R_{DS(on)} (MAX.)$	60m Ω	90m Ω
I_D	12A	-10A



Pb-Free Lead Plating & Halogen Free



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS		UNIT
Gate-Source Voltage		V_{GS}	N-CH	P-CH	V
			±20	±20	
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	12	-10	A
	$T_C = 100\text{ }^{\circ}\text{C}$		8	-6.6	
Pulsed Drain Current ¹		I_{DM}	48	-40	
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	16		W
	$T_C = 100\text{ }^{\circ}\text{C}$		6		
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	$R_{\theta JC}$		7.5	$^\circ\text{C} / \text{W}$
Junction-to-Ambient ³	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

³62.5 $^\circ\text{C} / \text{W}$ when mounted on a 1 in² 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		
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$ $V_{GS} = 0V, I_D = -250\mu A$	N-CH	60			V
			P-CH	-60			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$ $V_{DS} = V_{GS}, I_D = -250\mu A$	N-CH	1.0	1.7	3.0	
			P-CH	-1.0	-1.7	-3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$ $V_{DS} = 0V, V_{GS} = \pm 20V$	N-CH			± 100	nA
			P-CH			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$ $V_{DS} = -48V, V_{GS} = 0V$	N-CH			1	μA
			P-CH			-1	
		$V_{DS} = 40V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$ $V_{DS} = -40V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$	N-CH			25	
			P-CH			-25	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$ $V_{DS} = -5V, V_{GS} = -10V$	N-CH	12			A
			P-CH	-10			
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 6A$ $V_{GS} = -10V, I_D = -5A$	N-CH		50	60	mΩ
			P-CH		78	90	
		$V_{GS} = 4.5V, I_D = 4A$ $V_{GS} = -4.5V, I_D = -3A$	N-CH		60	85	
			P-CH		100	135	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 6A$ $V_{DS} = -5V, I_D = -5A$	N-CH		13		S
			P-CH		9		
DYNAMIC							
Input Capacitance	C_{iss}	N-CH $V_{GS} = 0V, V_{DS} = 30V, f = 1MHz$ P-CH $V_{GS} = 0V, V_{DS} = -30V, f = 1MHz$	N-CH		633		pF
Output Capacitance	C_{oss}		P-CH		963		
			N-CH		67		
Reverse Transfer Capacitance	C_{rss}		P-CH		76		
			N-CH		44		
			P-CH		61		

Total Gate Charge ^{1,2}	Q _g	N-CH V _{DS} = 30V, V _{GS} = 10V, I _D = 6A P-CH V _{DS} = -30V, V _{GS} = -10V, I _D = -5A	N-CH		13.8		nC
Gate-Source Charge ^{1,2}	Q _{gs}		P-CH		16.2		
Gate-Drain Charge ^{1,2}	Q _{gd}		N-CH		2.8		
			P-CH		2.0		
			N-CH		4.0		
			P-CH		3.5		
Turn-On Delay Time ^{1,2}	t _{d(on)}	N-CH V _{DS} = 30V, I _D = 1A, V _{GS} = 10V, R _{GS} = 6Ω	N-CH		10		nS
Rise Time ^{1,2}	t _r		P-CH		10		
			N-CH		7.5		
			P-CH		12		
Turn-Off Delay Time ^{1,2}	t _{d(off)}	P-CH V _{DS} = -30V, I _D = -1A, V _{GS} = -10V, R _{GS} = 6Ω	N-CH		15		
			P-CH		20		
Fall Time ^{1,2}	t _f		N-CH		10		
			P-CH		15		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)							
Continuous Current	I _S		N-CH			12	A
			P-CH			-10	
Pulsed Current ³	I _{SM}		N-CH			48	V
			P-CH			-40	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V	N-CH			1.3	V
			P-CH			-1.3	

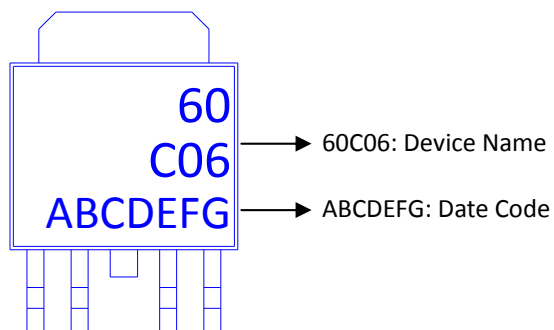
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

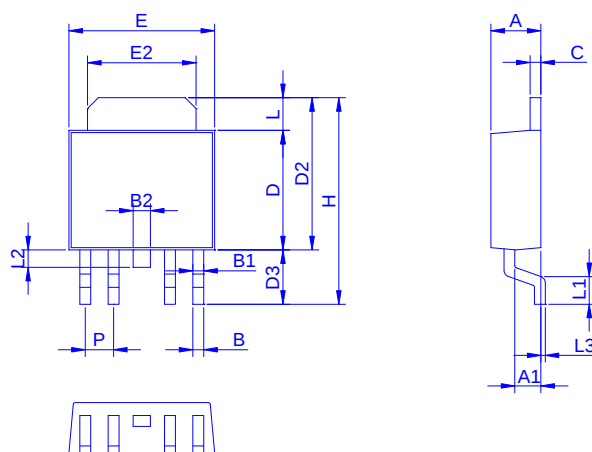
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: LB60C06D for DPAK (TO-252)

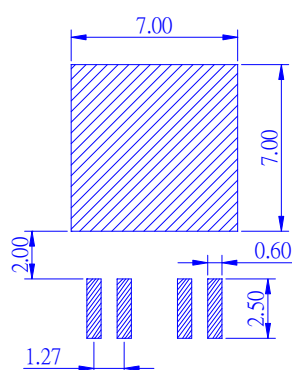


Outline Drawing

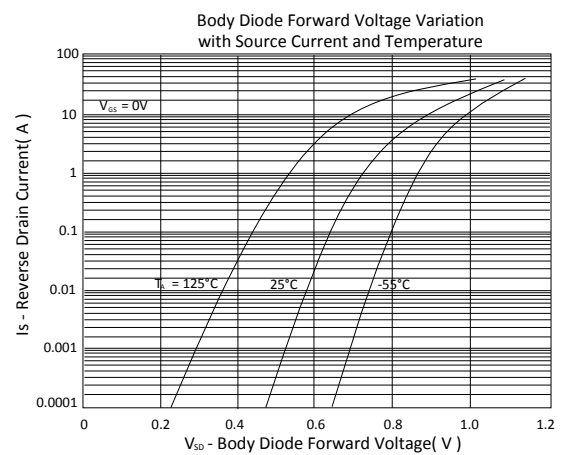
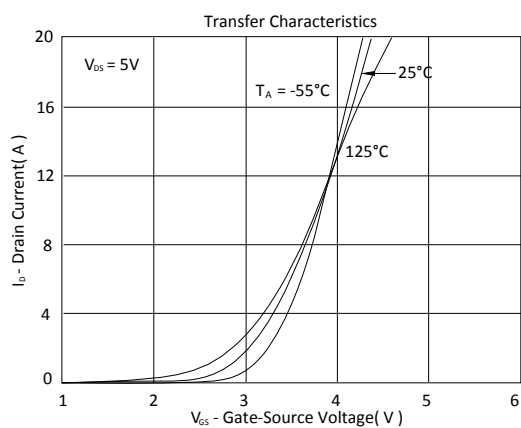
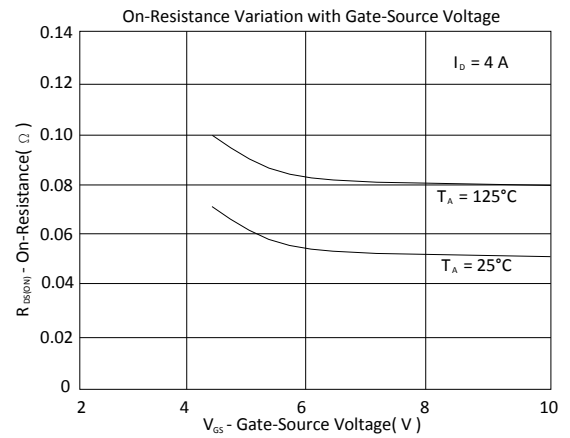
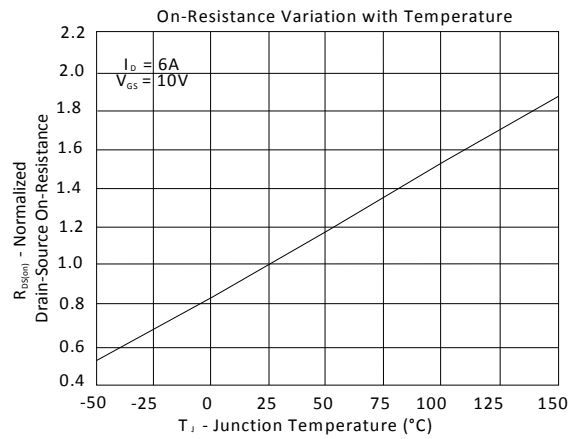
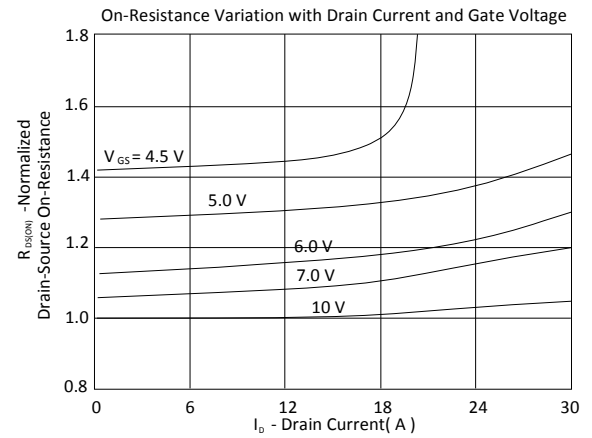
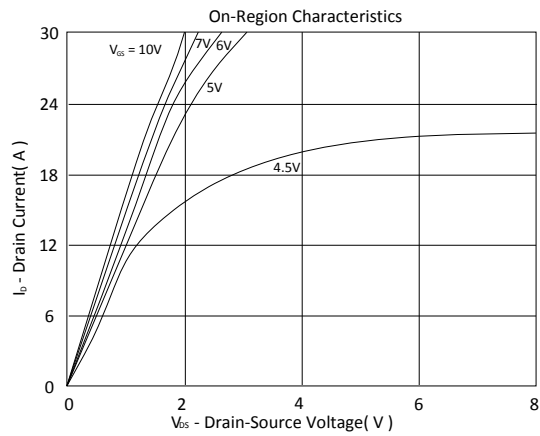


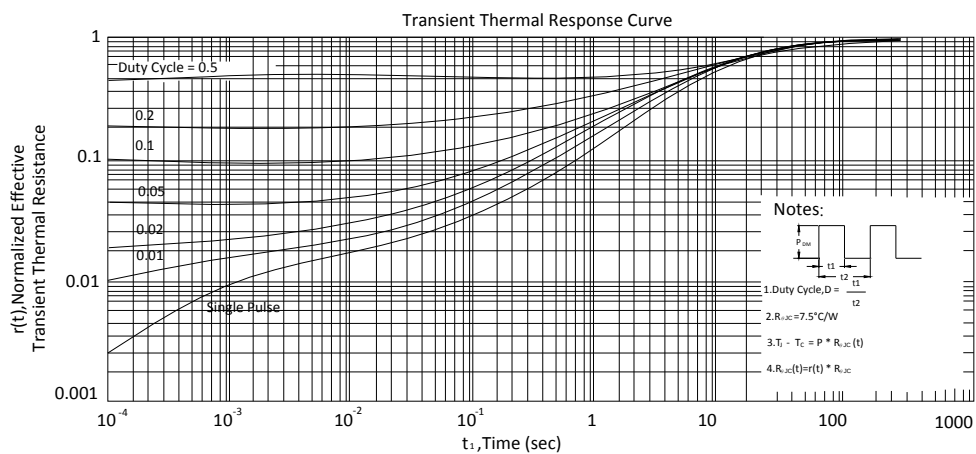
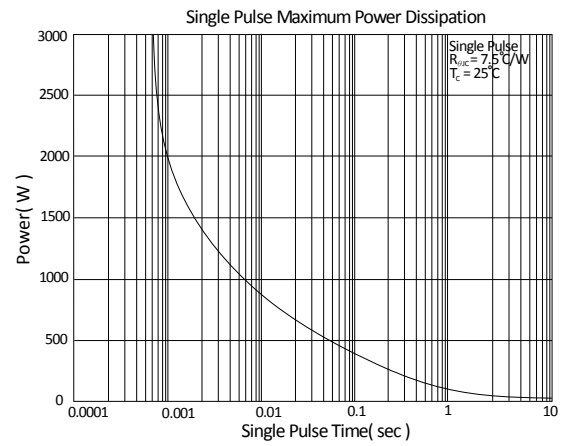
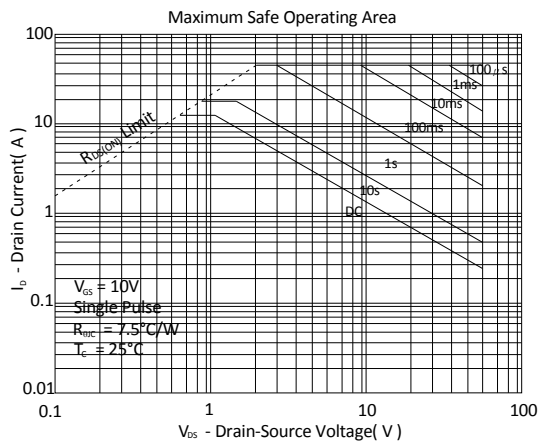
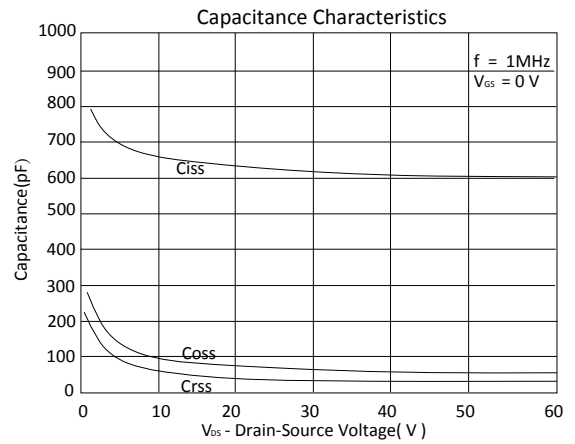
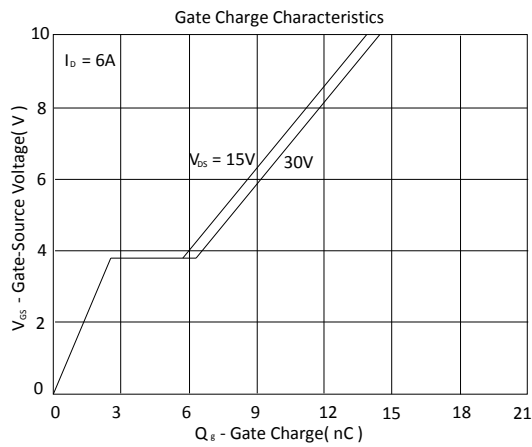
Dimension	A	A1	B	B1	B2	C	D	D2	D3	E	E2	H	L	L1	L2	L3	P
Min.	2.10	1.10	0.30	0.55	0.40	0.40	5.30	6.70	2.20	6.30	4.80	9.20	1.30	0.90	0.50	0.00	1.17
Max.	2.50	1.30	0.70	0.75	0.80	0.60	5.70	7.30	3.00	6.70	5.45	10.15	1.70	1.50	1.10	0.30	1.37

Footprint



N-Channel





P-Channel

