

General Description

The MY015DBNE5 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

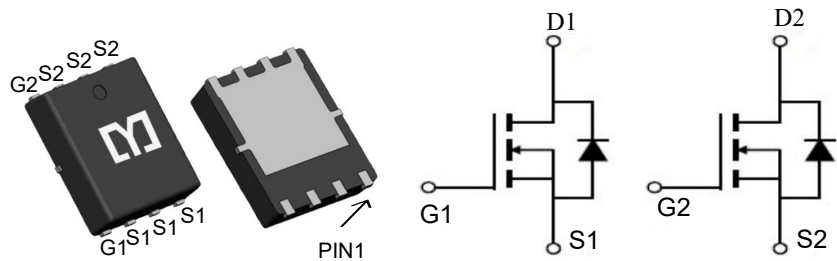


Features

V_{DSS}	60	V
I_D	15	A
$P_D(T_A=25^\circ\text{C})$	2.1	W
$R_{DS(ON)}(at V_{GS}=10V)$	15	$m\Omega$

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY015DBNE5	PDFN5*6-8L	12D06	5000

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

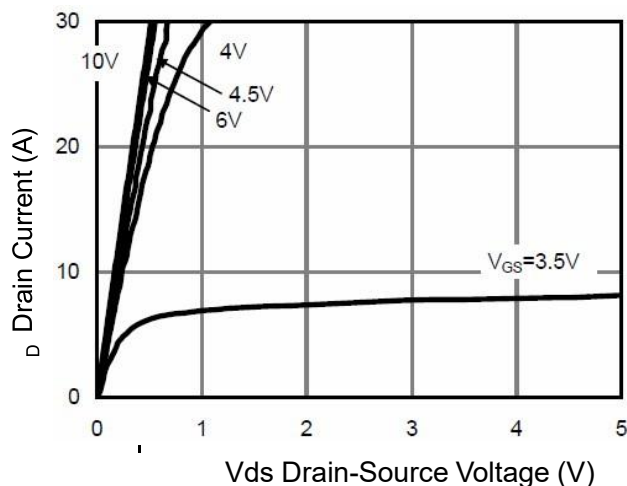
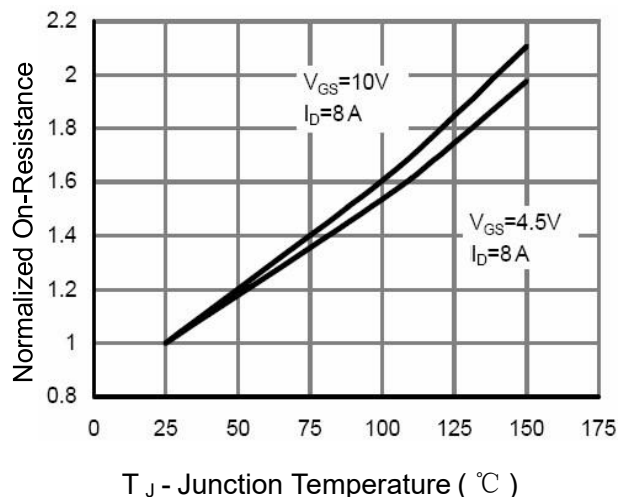
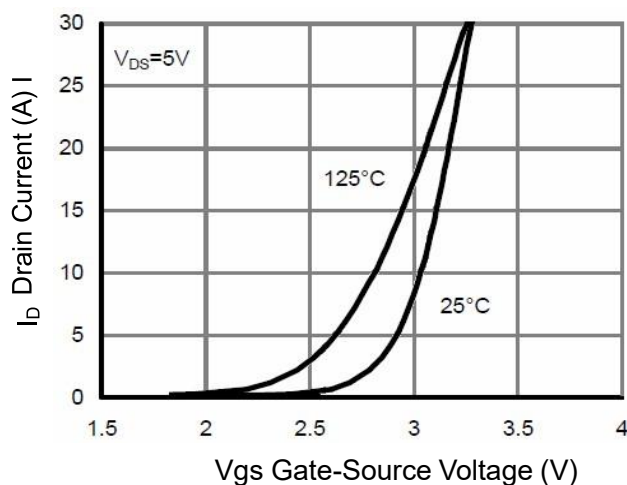
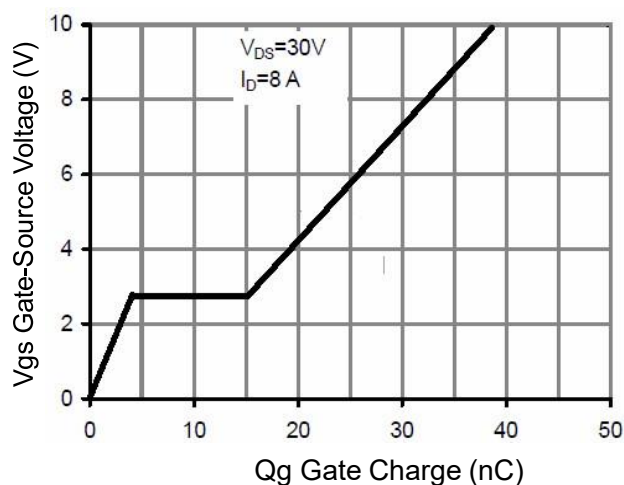
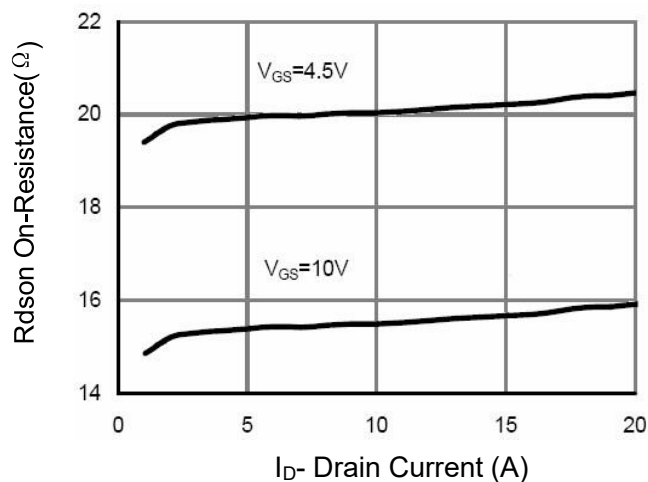
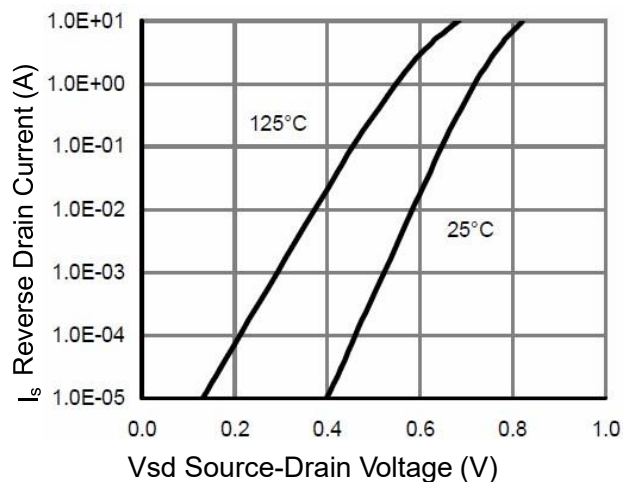
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	15	A
Drain Current-Continuous($T_C=100^\circ\text{C}$)	$I_D(100^\circ\text{C})$	5.6	A
Pulsed Drain Current	I_{DM}	32	A
Maximum Power Dissipation	P_D	2.1	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	60	$^\circ\text{C/W}$

Electrical Characteristics ($T_A=25\text{ }^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.6	2.2	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=8A$	-	12.6	15	m Ω
		$V_{GS}=4.5V, I_D=8A$	-	14	20	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=8A$	18	-	-	S
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V,$ $F=1.0MHz$	-	1600	-	PF
Output Capacitance	C_{oss}		-	112	-	PF
Reverse Transfer Capacitance	C_{rss}		-	98	-	PF
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, R_L=1\Omega$ $V_{GS}=10V, R_{GEN}=3\Omega$	-	7	-	nS
Turn-on Rise Time	t_r		-	5.5	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	29	-	nS
Turn-Off Fall Time	t_f		-	4.5	-	nS
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=8A,$ $V_{GS}=10V$	-	38.5	-	nC
Gate-Source Charge	Q_{gs}		-	4.7	-	nC
Gate-Drain Charge	Q_{gd}		-	10.3	-	nC
Diode Forward Voltage ^(Note 3)	V_{SD}	$V_{GS}=0V, I_S=8A$	-	-	1.2	V
Diode Forward Current ^(Note 2)	I_S	-	-	-	8	A
Reverse Recovery Time	t_{rr}	$T_J = 25^{\circ}\text{C}, I_F = 8A$ di/ $dt = 100A/\mu s$ ^(Note3)	-	28	-	nS
Reverse Recovery Charge	Q_{rr}		-	40	-	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Characteristics

Figure 1 Output Characteristics

Figure 4 $R_{DS(on)}$ -Junction Temperature

Figure 2 Transfer Characteristics

Figure 5 Gate Charge

Figure 3 $R_{DS(on)}$ - Drain Current

Figure 6 Source- Drain Diode Forward

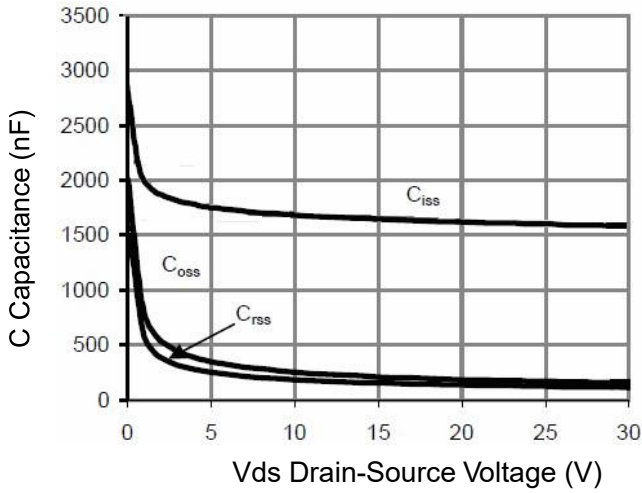


Figure 7 Capacitance vs Vds

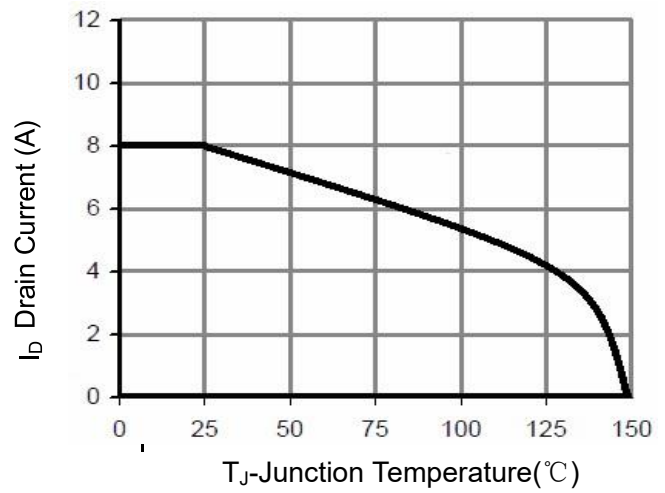


Figure 9 Current De-rating

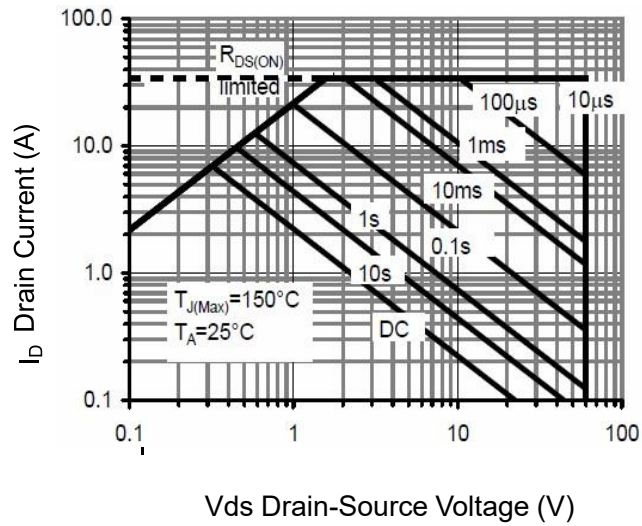


Figure 8 Safe Operation Area

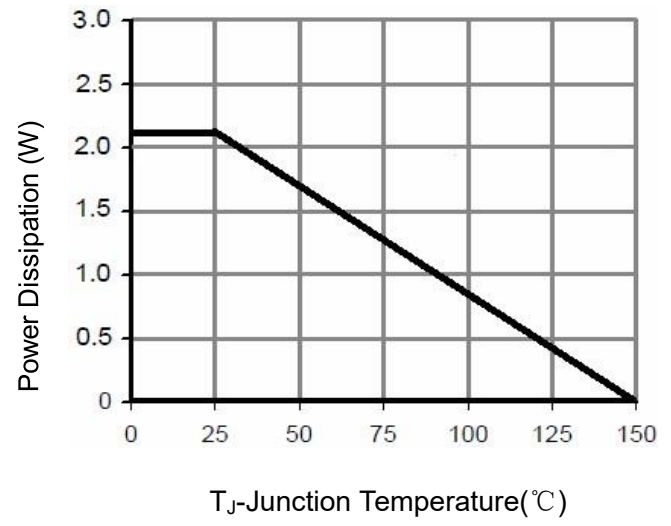


Figure 10 Power De-rating

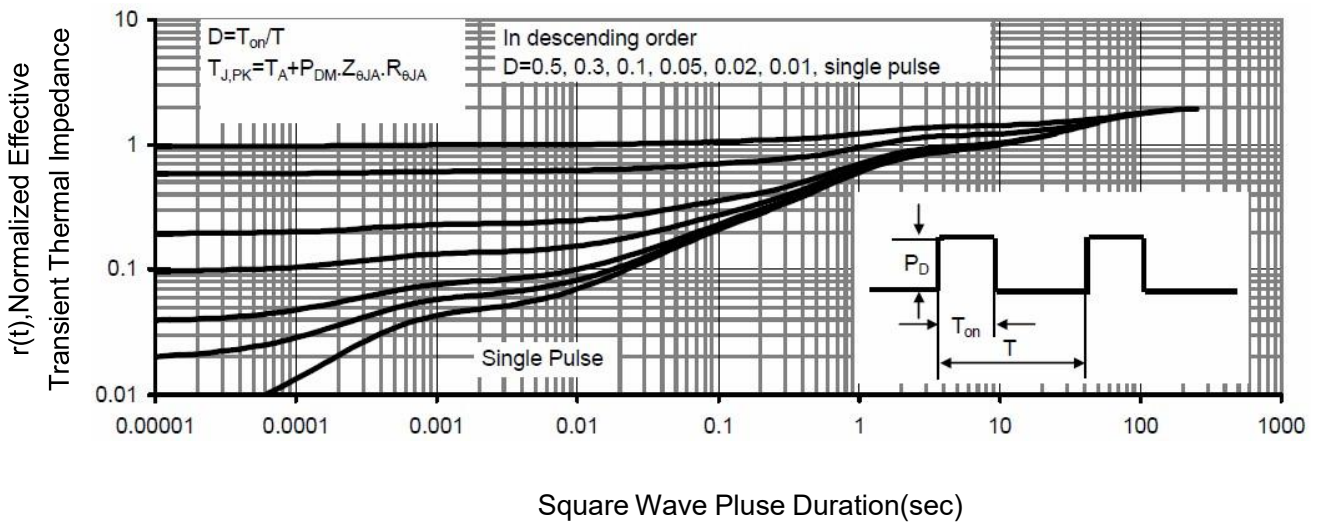
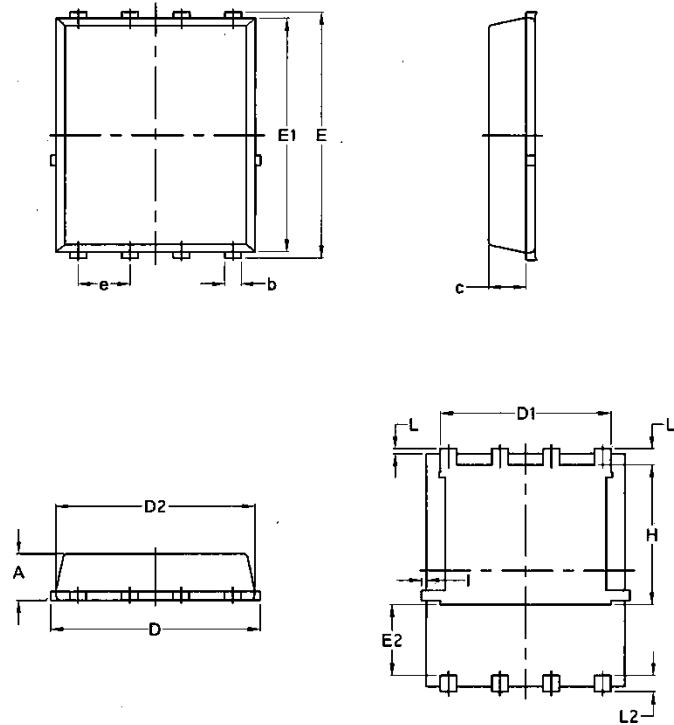


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Mechanical Data-DFN5*6-8L-JQ Single



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070