種別／Type	シリコンＭＯＳ形集積回路／Silicon MOSFET type Integrated Circuit		
用途／Application	ｽｲｯﾁﾝｸﾞ電源制御用／For a Switching Power Supply Control		
構造／Structure	ＣＭＯＳ形／CMOS Type		
外形／Out line	ＤＩＰ７－Ａ１－Ｂ	ﾏｰｸ記号／ﾏｰｷﾝｸﾞ／Marking	ＭＩＰ２Ｅ１Ｄ

Ａ．絶対最大定格／Absolute Maximum Ratings

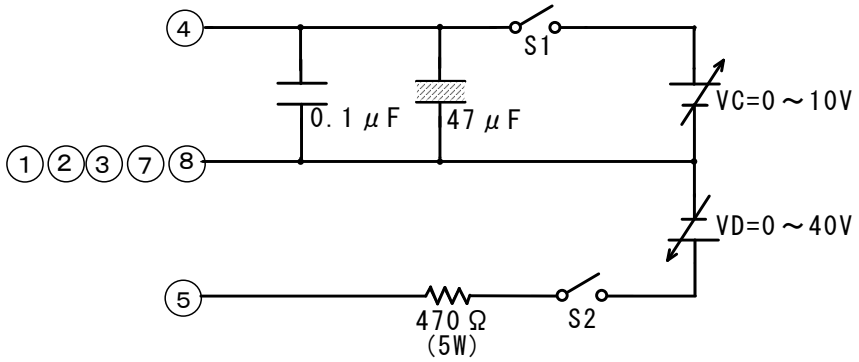
No.	項目／Item	記号／Symbol	定格／Ratings	単　位／Unit
1	ドレイン電圧 DRAIN Voltage	ＶＤ	７００	Ｖ
2	コントロール電圧 CONTROL Voltage	ＶＣ	１０	Ｖ
3	出力電流 Output Current	ＩＤ	０．４３	Ａ
4	出力ピーク電流 Output Peak Current	ＩＤＰ	０．６１	Ａ
5	コントロール電流 CONTROL Current	ＩＣ	０．１	Ａ
6	チャネル部温度 Channel Temperature	Ｔｃｈ	１５０	℃
7	保存温度 Storage Temperature	Ｔｓｔｇ	－５５ ～ ＋１５０	℃

Ｂ．電気的特性／Electrical characteristics　　測定条件／Measure condition (Tc=25℃±3℃)

No.	項目／Item	記号／Symbol	測定条件／Measure Condition (別紙測定図-1参照／See Figure 1)	Typ.	Limit Min	Limit Max	Unit
【コントロール機能／Control functions：*は設計保証項目/Design Guarantee Item】							
1	出力周波数 Output Frequency	fosc	Vc=Vc(CNT)-0.2V	100	90	110	kHz
2	最大ﾃﾞｭｰﾃｨｰｻｲｸﾙ Maximum Duty Cycle	MAXDC	Vc=Vc(CNT)-0.2V	69	66	72	%
*3	ＰＷＭｹﾞｲﾝ PWM Gain	GPWM		11			dB
*4	ｽﾛｰﾌﾟ補償値 Slope Compensate Value	m		15			mA/us
【電源／Supply：*は設計保証項目/Design Guarantee Item】							
5	起動前動作電流 Before Auto-restart Current	IC(SB)	VC＜VC(ON)　（２）	0.30	0.05	0.6	mA
6	動作時電流 Operating Current	IC(OP)	VC=VC(CNT)-0.2V　（２）	1.8	0.7	2.7	mA
7	起動時ｺﾝﾄﾛｰﾙ端子電圧 Auto-restart Threshold Voltage	VC(ON)	S1=OPEN　（２）	6.0	5.1	6.6	V
8	停止時ｺﾝﾄﾛｰﾙ端子電圧 UV Lockout Threshold Voltage	VC(OFF)	S1=OPEN　（２）	5.0	4.1	5.5	V

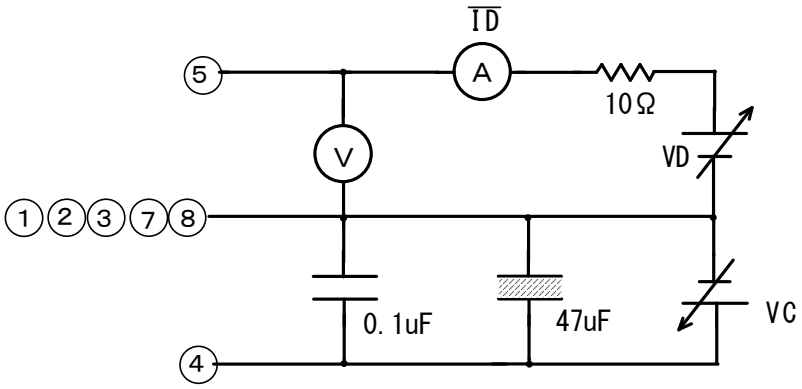
9	起動/停止ﾋｽﾃﾘｼｽ電圧 Auto-restar hysteresis Voltage	⊿VC	S1=OPEN （２）	1.0	0.5	1.5	V
10	間欠動作時間比 Auto-restart duty cycle	TSW/TTIM	S1=OPEN	2			%
11	間欠動作周波数 Auto-restart frequency	fTIM	S1=OPEN	0.5			Hz
12	ｺﾝﾄﾛｰﾙ端子充電電流 CONTROL Pin Charging Current	IC(CHG)	VC=0V	-1.9	-2.5	-1.2	mA
			VC=5V	-1.2	-2.0	-0.5	mA
13	ｺﾝﾄﾛｰﾙ電圧 CONTROL Pin Voltage	VC(CNT)		6.2	5.7	6.6	V
*14	ｺﾝﾄﾛｰﾙ電圧ﾋｽﾃﾘｼｽ CONTROL Pin Voltage hysteresis	⊿ VC(CNT)		10			mV
15	最小ﾄﾞﾚｲﾝ電圧 DRAIN Supply Voltage	VD(MIN)			36		V
	【保護機能／Circuit protection：*は設計保証項目/Design Guarantee Item】						
16	過電流保護検出 Self-protection Current Limit	ILIMIT		0.375	0.335	0.415	A
*17	ｵﾝ時ﾌﾞﾗﾝｷﾝｸﾞ幅 Leading Edge Blanking Delay	ton(BLK)		0.25			μs
*18	過電流保護遅れ時間 Current Limit Delay	td(OCL)		0.1			μs
*19	過熱保護温度 Thermal Shutdown Temperature	TOTP		140	130		℃
*20	ﾗｯﾁﾘｾｯﾄ電圧 Power-up Reset Threshold Voltage	Vcreset	S2=OPEN	3.3	2.3	4.2	V
	【出力／Output：*は設計保証項目/Design Guarantee Item】						
21	ｵﾝ抵抗 On-State Resistance	RDS(ON)	ID=0.1A (See Figure 2)	23		27	Ω
22	ｵﾌ時ﾄﾞﾚｲﾝ端子ﾘｰｸ電流 OFF-State Current	IDSS	VDS=650V, Vc=6.5V	10		250	uA
23	ﾄﾞﾚｲﾝ耐圧 Breakdown Voltage	VDSS	ID=0.25mA, Vc=6.5V		700		V
24	立ち上がり時間 Rise tim	tr	（１）	0.1			μs
25	立ち下がり時間 Fall time	tf	（１）	0.1			μs
*26	熱抵抗 Thermal resistance (j-a)	Rth (j-a)	ｴﾎﾟｷｼ基板(3cm×3cm)実装時 Ta=25℃ Surface Mounted on Epoxy Bord	90			℃/W

【Figure 1：測定回路図／Measure Circuit】



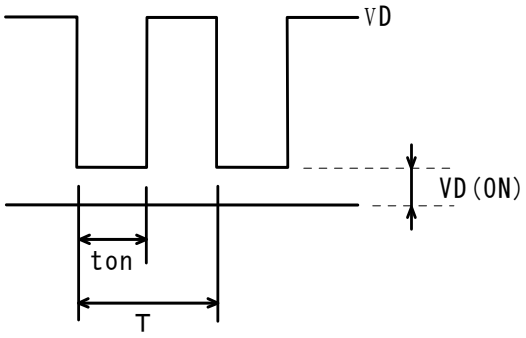
＊本測定回路は、過電流保護検出値、出力特性の測定には使用できません。
This measurement circuit can't be useful for peak current and output characteristic measurement.

【Figure 2：測定回路図／Measure Circuit】

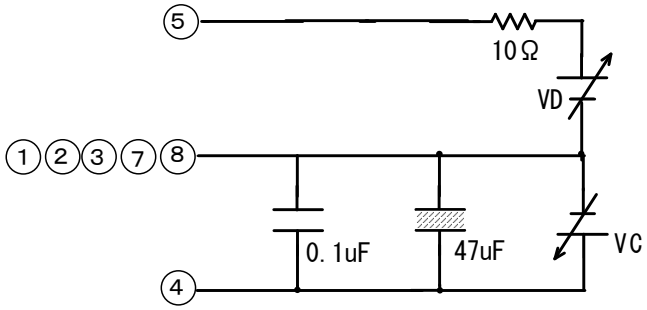


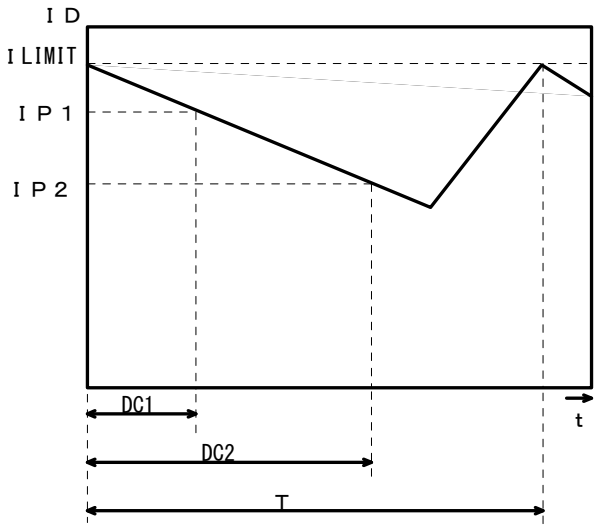
$$Ron = \frac{VD(ON)}{\overline{ID}} \times \frac{ton}{T}$$

端子説明／Terminal explanation
④：Control
①②③⑦⑧：Source
⑤：Drain



【Figure ３：測定回路図／Measure Circuit】





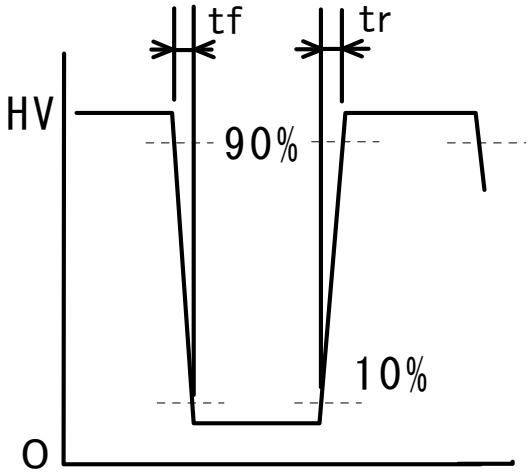
$$ILIMIT = \frac{DC2 \cdot IP1 - DC1 \cdot IP2}{DC2 - DC1}$$

$$m = fosc \cdot \frac{IP1 - IP2}{DC2 - DC1}$$

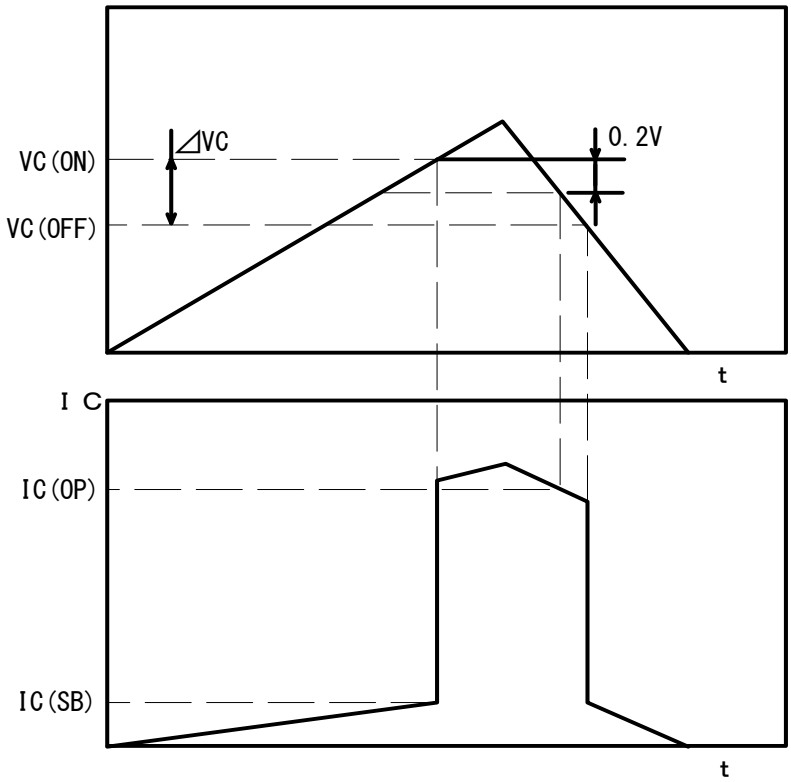
端子説明／Terminal explanation
④：Control
①②③⑦⑧：Source
⑤：Drain

＊DC1, DC2は、VDをそれぞれVD1, VD2にしたときのﾃﾞｭｰﾃｨｰｻｲｸﾙ（0＜DC1＜DC2＜MAXDC）
／DC1,DC2 is duty cycle when VD is VD1 and VD2,respectively.

【ＮＯＴＥ（１）】



（２）



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Attached table "IPD availability by customer"

Parts No.			Companies/areas to which products can be sold	Companies/areas to which products cannot be sold	Application
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MIP00** MIP55** MIP803/804	MIP52** MIP56** MIP816/826	MIP53** MIP5S** MIP9E**	· Japanese companies in Japan · Japanese companies in Asia (50% or more owned) · Asian companies in Asia	· Companies in European and American countries · Other local companies	· For power supply · For EL driver · For LED lighting driver
MIP50**	MIP51**	MIP7**	· No restrictions in terms of contract	· No restrictions in terms of contract	· For lamp driver/ car electronics accessories

Note) For details, contact our sales division.