Solitron Devices, Inc.

SPECIFICATIONS

EEEQ5416

EDP CODE: 200EQC5416 A

NO.: 2N5416

TYPE: PNP SILICON POWER

CASE: TO-39 # A

FS-2002A DR11787

MAXIMUM RATINGS

Voltage, Collector to Base (V_{CBO})	-350	V
Voltage, Collector to Emitter (V_{CEO})	-300	V
Voltage, Emitter to Base (V_{EBO})	-6.0	V
Collector Current (I_C)	-1.0	A
Base Current (I_B)	-500 m	A
Maximum Thermal Resistance, Junction to Case	17.5	°C/W
Maximum Junction Temperature	-65°C TO 200	°C
Power of Transistor (P_T) T_C = 100°C	5.7	WATTS
Power of Dissipation (Pt) Tc=25°C	---10---	WATTS

TA = 25°C — PERFORMANCE CHARACTERISTICS — UNLESS OTHERWISE NOTED

NO.	SYMBOL	CONDITIONS		MIN.	MAX.	UNITS	
1	I-CEO	VCE=-250 V	IB=0		-50	UA	
⊛ 2	I-CBO	VCB=-280 V	IB=0		-50	UA	
3	I-CEV	VCE=-300 V	VBE=1.5 V		-50	UA	
4	I-EBO	VEB=-6.0 V	IC=0		-20	UA	
⊛ 5	h-FE *	VCE=-10 V	IC=-50 mA	30	120		A
6	V-CEO(SUS)	IC=-50 mA	IB=0	-300		V	
7	V-CER(SUS)	IC=-50 mA	R=50 Ω	-350		V	
8	V-BE(ON) *	VCE=-10 V	IC=-50 mA		-1.5	V	A
9	V-CE(S) *	IC=-50 mA	IB=5.0 mA		-2.0	V	A
⊛ 10	h-fe	VCE=-10 V	IC=-5.0mA f=1.0KHz	25			A
⊛ 11	|h-fe|	VCE=-10 V	IC=-10 mA f=5.0MHz	3.0			
⊛ 12	Re hie	VCE=-10V	IC=-5.0mA f=1.0 MHz		300	Ω	
⊛ 13	Cibo	VEB=-5.0 V	IC=0 f=1.0MHz		75	PF	
⊛ 14	C-obo	VCB=-10V	IE=0 f=1.0MHz		15	PF	
15	IS/b	VCE=-100V		-100		mA	
16	θ-JC				17.5	°c/w	
17							
18							
19							
20							

NOTES: *PULSED: 300 USEC; D.C. = 2.0% WRITTEN TO JEDEC 5781 AND SOLITRON CAT 12-74-EE.
⊛ JEDEC REGISTERED PARAMETERS.

12-12-79 - REWRITTEN, DELETED STATEMENT LINE 10, ADDED TEST #1, 3. M.W.
REV "A" - ADDED THREE DIGIT (EDP CODE) DENOTED PULSE TESTS. LINE 8 - WAS V-BE(S). CASE EXCEPTION ADDED. 10/7/81 [illegible]

MARK: -5-
2N5416
DATE CODE

EXCEPTION TO JEDEC TO-5 CASE

Customer: GENERAL PURPOSE

DATE 12-12-79 M.W.

SOLITRON DEVICES, INC. PRODUCT SPECIFICATION

SOLITRON P/N: 2N4416 **CUSTOMER P/N:** _____ **REV:** _____

ORIGINATOR: MILITARY **REFERENCE SPEC:** _____ **REV:** _____

PKG: TO-72
PARTS DWG: DR15014
EDS NO:
DESIGN LIMITS: FN2.5
REFERENCE DEVICE: JEDEC RELEASE NO. 5383

DEVICE MARKING

(a) S
(b) 2N4416
(c) DATE CODE
(d) ESD SYMBOL (Δ)
(e)

PACKAGING:
PACKAGE MARKING

(a) SOLITRON DEVICES INC.
(b) CAGE/MFR 21845 P/N 2N4416
(c) N-CHANNEL FET
(d) QUANTITY EACH / DATE CODE
(e) P.O./ CONTRACT NUMBER
(f) MONTH/YEAR OF PACKING
(g)
(h)

SPECIFICATION REQUIREMENTS:

PRE CAP CSI	
POLY-COAT	
SCREENING	
PIND TEST	
GROUP A	X
GROUP B	
GROUP C	
SOLDER-DIP	
X-RAY	
FINAL CSI	

DATA TO BE SUPPLIED:

C OF C	X
SUMMARIES	
ATTRIBUTES TEST DATA	
VARIABLES TEST DATA	
GROUP B/C SAMPLES	
X-RAY PLATES	

APPROVAL SIGNATURES

PRODUCTION: Rajiv Sagar DATE: 2/7/00

ENGINEERING: [signature] DATE: 2/7/00

QUALITY: [signature] DATE: 2/10/00

DATE	REV.	RFC#	DESCRIPTION
2/10/00	-	-	NEW RELEASE.

		SPECIFICATION				ASSEMBLY				GROUP A	
REV STATUS	REV	-	-	-	-	-	-	-	-	-	-
OF SHEETS	SH	1	2	3	4	5	6	7	8	9	10

ELECTRICAL CHARACTERISTICS

TYPE NO: 2N4416

T#	TEST METHOD	SYMBOL	CONDITIONS	MIN	MAX	UNITS
1	750-3411 C	IGSS	VGS= -20V VDS=0		-0.1	nA
2	750-3403	VGS(f)	IG=1mA VDS=0		1	V
3	750-3401 C	V(BR)GSS	IG= -1μA VDS=0	-30		V
4	750-3413 C	IDSS *	VDS=15V VGS=0	5		mA
5	750-3413 C	IDSS *	VDS=15V VGS=0		15	mA
6	750-3403	VGS	VDS=15V ID=.5mA	-1		V
7	750-3403	VGS	VDS=15V ID=.5mA		-5.5	V
8	750-3403	VGS(OFF)	VDS=15V ID=1nA		-6	V
9						
10						
11	750-3411 C	IGSS	VGS= -20V VDS=0 TA=150°C		-0.2	μA
12						
13		$\|yfs\|$	VDS=15V VGS=0V f=1KHz	4500	7500	μmho
14	750-3453	$\|yos\|$	VDS=15V VGS=0V f=1KHz		50	μmho
15	750-3431	Ciss	VDS=15V VGS=0V f=1MHz		4	pF
16	750-3433	Crss	VDS=15V VGS=0V f=1MHz		0.8	pF
17		Coss	VDS=15V VGS=0V f=1MHz		2	pF
18		Re(yfs)	VDS=15V VGS=0V f=400MHz	4000		μmho
19		Re(yis)	VDS=15V VGS=0V f=400MHz		1000	μmho
20		Im(yis)	VDS=15V VGS=0V f=400MHz		10000	μmho
21		Re(yfs)	VDS=15V VGS=0V f=100MHz		100	μmho
22		Im(yis)	VDS=15V VGS=0V f=100MHz		2500	μmho
23		Re(yos)	VDS=15V VGS=0V f=400MHz		100	μmho
24		Im(yos)	VDS=15V VGS=0V f=400MHz		4000	μmho
25		Re(yfs)	VDS=15V VGS=0V f=100MHz		75	μmho
26		Im(yis)	VDS=15V VGS=0V f=100MHz		1000	μmho
27		Gps	VDS=15V ID=5mA f=400MHz FIG. 1	10		db
28		Gps	VDS=15V ID=5mA f=100MHz FIG. 1	18		db
29						
30	750-3246	NF	VDS=15V ID=5mA RG=1000Ω f=400MHz FIG. 1		4.0	db
31	750-3246	NF	VDS=15V ID=5mA RG=1000Ω f=100MHz FIG. 1		2.0	db
32						
33						
34						
35		*	PULSE MEASUREMENT PW=300μSEC			
36			DUTY CYCLE=1%			

SOLITRON DEVICES, INC. PRODUCT SPECIFICATION

SOLITRON P/N:	**FD1185**	**CUSTOMER P/N:**	**A-1855-0049-1**	**REV:**	**D**
ORIGINATOR :	**HEWLETT PACKARD**	**REFERENCE SPEC:**	**A-5951-7600-1**	**REV:**	**R**
		REFERENCE FILE:			

PKG: TO-71
PARTS DWG: DR15002 OR DR15008
GEOMETRY: DFN. 3.6, DFN22.2
HEADER:810003 CAN:811001
REFERENCE DEVICE:

DEVICE MARKING

(a) S
(b) 5-049
(c) DATE CODE
(d) Δ
(e)

PACKAGING:
PACKAGE MARKING

(a) SOLITRON DEVICES INC.
(b) CAGE/MFR 21845 P/N FD1185
(c) P/N A-1855-0049-1
(d) TRANSISTOR
(e) QUANTITY EACH / DATE CODE
(f) P.O./ CONTRACT NUMBER
(g) MONTH/YEAR OF PACKING
(h)

SPECIFICATION REQUIREMENTS:

PRE CAP CSI	
POLY-COAT	
SCREENING	
PIND TEST	
GROUP A	X
GROUP B	
GROUP C	
SOLDER-DIP	
X-RAY	
FINAL CSI	

DATA TO BE SUPPLIED:

C OF C	X
SUMMARIES	
ATTRIBUTES TEST DATA	
VARIABLES TEST DATA	
GROUP B/C SAMPLES	
X-RAY PLATES	

APPROVAL SIGNATURES

PRODUCTION: _____ DATE: 6/5/01
ENGINEERING: _____ DATE: 6/4/01
QUALITY: _____ DATE: 6/11/01

DATE	REV.	RFC#	DESCRIPTION
	E	H6787	UPDATED TO NEW FORMAT.

ELECTRICAL CHARACTERISTICS

TYPE NO: FD1185

T #	TEST METHOD	SYMBOL	CONDITIONS	MIN	MAX	UNITS
1			SUBGROUP 1			
2	750-2071		VISUAL AND MECHANICAL			
3						
4			SUBGROUP 2			
5	750-3401 C	BVGSS	IG=1uA VDS=0	40		V
6	750-3413 C	IDSS	VDS=20V VGS=0	1	8	mA
7	750-3411 C	IGSS	VGS=-20V VDS=0		100	pA
8	750-3403	VP	VDS=20V ID=1nA		4	V
9		GFS	VDS=20V ID=200µA F=1KHz	700		µMHO
10		GFS1/GFS2	VDS=20V ID=200µA	.9	1	
11		VGS1-VGS2	VDS=20V ID=200µA		20	mV
12	750-3403	VGS (F)	IG=1mA GATE TO SOURCE FWD BIAS		.9	V
13						
14			SUBGROUP 3			
15		ΔVGS1-ΔVGS2	VDS=20V ID=200µA TA=25°C -75°C		1.25	mV
16	750-3411 C	IGSS	VGS=-20V VDS=0 TA=75°C		5	nA
17		ΔVGS	VDS=20V ID=200µA TA=25°C –25°C		1.25	mV
18						
19			SUBGROUP 4			
20	750-3431	Ciss	VDS=20V VGS=0 f=1MHz		6	pF
21	750-3433	Crss	VGS=0V VDS=20 f=1MHz		2.5	pF
22		EN	VDS=20V VGS=0 f=10Hz		250	nV/√HZ
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