TECH PUBLIC
台舟电子

TPTLV760xxDBZR

100-mA, SOT-23, Quasi Low-Dropout Linear Voltage Regulator

www.sot23.com.tw

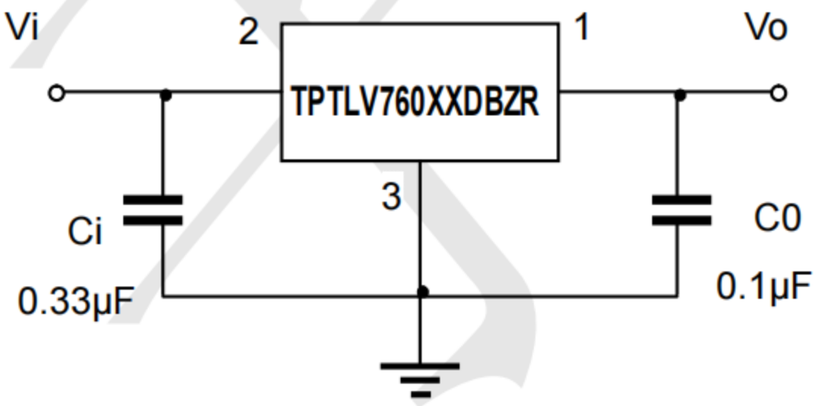
FEATURES

- Output Voltage Range 3.3V, 5V, 12V, 15V,
- Output current up to 100mA
- No external components required
- Internal thermal overload protection
- Internal short-circuit current limiting
- Output transistor safe-area compensation
- Output voltage offered in 4% tolerance
- RoHS

APPLICATION

- Switching power supply
- Home appliance

Typical Application



ORDERING INFORMATION

TECH PUBLIC PART NO.	PACKAGE	PACKING
TPTLV76033DBZR	SOT-23	3,000pcs / 7"Reel
TPTLV76050DBZR	SOT-23	3,000pcs / 7"Reel
TPTLV76012DBZR	SOT-23	3,000pcs / 7"Reel
TPTLV76015DBZR	SOT-23	3,000pcs / 7"Reel

Dimensions and Pin Configuration

SOT23

1. OUT
2. IN
3. GND

Marking:

TPTLV76033DBVR: L0A Or 18H
TPTLV76050DBVR: L0B Or 18I
TPTLV76012DBVR: L0C Or 18G
TPTLV76015DBVR: L0D Or 18C

ABSOLUTE MAXIMUM RATINGS

TECH PUBLIC PARAMETER		SYMBOL	LIMIT	UNIT
DC Input Voltage	TPTLV76033DBZR	Vin	30	V
	TPTLV76050DBZR		35	
	TPTLV76012DBZR		35	
	TPTLV76015DBZR		35	
Power Dissipation		P_D	Internally Limited	W
Operating Junction Temperature		T_J	+150	°C
Recommended Operating Junction Temperature Range		T_J	-40 ~ +125	°C
Operating Ambient Temperature Range		T_A	-40 ~ +85	°C
Storage Temperature Range		T_{STG}	-65~+150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYPICAL	UNIT
Junction to Case Thermal Resistance	$R_{\Theta JC}$	120	°C/W
Junction to Ambient Thermal Resistance	$R_{\Theta JA}$	330	°C/W

ELECTRICAL SPECIFICATIONS

TPTLV76033DBZR

(V_{IN}=8.3V, I_{OUT}=40mA, 0°C≤T_J≤125°C, C_{IN}=0.33μF, C_{OUT}=0.1μF, unless otherwise noted)

PARAMETER	CONDITIONS		SYMBOL	MIN	TYP	MAX	UNIT
Output voltage	T_J=25°C		V_{OUT}	3.173	3.3	3.432	V
	5.8V≤V_{IN}≤20V, 5mA≤I_{OUT}≤100mA			3.142	3.3	3.465	V
Line Regulation	T_J=25°C	5.8V≤Vin≤20V I_{OUT}=40mA	REG_{LINE}	--	50	150	mV
Load Regulation	T_J=25°C	5mA≤ I_{OUT}≤100mA	REG_{LOAD}	--	15	60	mV
		5mA≤I_{OUT}≤40mA		--	5	30	
Quiescent Current	I_{OUT}=0, T_J=25°C		I_Q	--	3	6	mA
Quiescent Current Change	5.8V≤Vin≤20V		ΔI_Q	--	--	1.5	mA
	5mA≤I_{OUT}≤40mA			--	--	0.1	
Output Noise Voltage	10Hz≤f≤100kHz, T_J=25°C		V_N	--	40	--	μV
Ripple Rejection Ratio	F=120Hz, 5.8V≤Vin≤20V		RR	41	49	--	dB
Voltage Drop	I_{OUT}=100mA, T_J=25°C		V_{DROP}	--	2	--	V
Peak Output Current	T_J=25°C		Io peak	--	0.15	--	A
Temperature Coefficient of Output Voltage	I_{OUT}=5mA, 0°C≤T_J≤150°C		$\Delta V_{OUT}/\Delta T_J$	--	-0.2	--	mV/ °C

TPTLV76050DBZR

(V_{IN}=10V, I_{OUT}=40mA, 0°C≤T_J≤125°C, C_{IN}=0.33μF, C_{OUT}=0.1μF, unless otherwise noted)

PARAMETER	CONDITIONS		SYMBOL	MIN	TYP	MAX	UNIT
Output voltage	T_J=25°C		V_{OUT}	4.80	5	5.20	V
	7.5V≤Vin≤20V, 5mA≤I_{OUT}≤100mA			4.75	5	5.25	V
Line Regulation	T_J=25°C	7.5V≤Vin≤20V I_{OUT}=100mA	REG_{LINE}	50	150	150	mV
Load Regulation	T_J=25°C	5mA≤I_{OUT}≤100mA	REG_{LOAD}	20	60	60	mV
		5mA≤I_{OUT}≤40mA		10	30	30	
Quiescent Current	I_{OUT}=0, T_J=25°C		I_Q	--	3	6	mA
Quiescent Current Change	7.5V≤Vin≤20V		ΔI_Q	--	--	1.5	mA
	5mA≤I_{OUT}≤40mA			--	--	0.1	
Output Noise Voltage	10Hz≤f≤100kHz, T_J=25°C		V_N	--	40	--	μV
Ripple Rejection Ratio	F=120Hz, 7.5V≤Vin≤20V		RR	41	49	--	dB
Voltage Drop	I_{OUT}=100mA, T_J=25°C		V_{DROP}	--	1.7	--	V
Peak Output Current	T_J=25°C		Io peak	--	0.15	--	A
Temperature Coefficient of Output Voltage	I_{OUT}=5mA, 0°C≤T_J≤150°C		$\Delta V_{OUT}/\Delta T_J$	--	-0.65	--	mV/ °C

TPTLV76012DBZR

(V_{IN}=19V, I_{OUT}=40mA, 0°C≤T_J≤125°C, C_{IN}=0.33μF, C_{OUT}=0.1μF, unless otherwise noted)

PARAMETER	CONDITIONS		SYMBOL	MIN	TYP	MAX	UNIT
Output voltage	T_J=25°C		V_{OUT}	11.53	12	12.48	V
	14.5V≤Vin≤27V, 5mA≤I_{OUT}≤100mA			11.42	12	12.60	V
Line Regulation	T_J=25°C	14.5V≤Vin≤27V I_{OUT}=40mA	REG_{LINE}	--	120	240	mV
Load Regulation	T_J=25°C	5mA≤I_{OUT}≤100mA	REG_{LOAD}	--	40	120	mV
		5mA≤I_{OUT}≤40mA		--	20	60	
Quiescent Current	I_{OUT}=0, T_J=25°C		I_Q	--	3	6.5	mA
Quiescent Current Change	14.5V≤Vin≤27V		ΔI_Q	--	--	1.5	mA
	5mA≤I_{OUT}≤40mA			--	--	0.1	
Output Noise Voltage	10Hz≤f≤100kHz, T_J=25°C		V_N	--	80	--	μV
Ripple Rejection Ratio	F=120Hz, 14.5V≤Vin≤27V		RR	37	42	--	dB
Voltage Drop	I_{OUT}=100mA, T_J=25°C		V_{DROP}	--	1.7	--	V
Peak Output Current	T_J=25°C		Io peak	--	0.15	--	A
Temperature Coefficient of Output Voltage	I_{OUT}=5mA, 0°C≤T_J≤150°C		$\Delta V_{OUT}/\Delta T_J$	--	-1.0	--	mV/ °C

TPTLV76015DBZR

(V_{IN}=23V, I_{OUT}=40mA, 0°C≤T_J≤125°C, C_{IN}=0.33μF, C_{OUT}=0.1μF, unless otherwise noted)

PARAMETER	CONDITIONS		SYMBOL	MIN	TYP	MAX	UNIT
Output voltage	T_J=25°C		V_{OUT}	14.42	15	15.60	V
	17.5V≤Vin≤30V, 5mA≤I_{OUT}≤100mA			14.28	15	15.75	V
Line Regulation	T_J=25°C	17.5V≤Vin≤30V I_{OUT}=40mA	REG_{LINE}	--	150	300	mV
Load Regulation	T_J=25°C	5mA≤I_{OUT}≤100mA	REG_{LOAD}	--	50	150	mV
		5mA≤I_{OUT}≤40mA		--	25	75	
Quiescent Current	I_{OUT}=0, T_J=25°C		I_Q	--	3	6.6	mA
Quiescent Current Change	17.5V≤Vin≤30V		ΔI_Q	--	--	1.5	mA
	5mA≤I_{OUT}≤40mA			--	--	0.1	
Output Noise Voltage	10Hz≤f≤100kHz, T_J=25°C		V_N	--	90	--	μV
Ripple Rejection Ratio	F=120Hz, 17.5V≤Vin≤30V		RR	34	39	--	dB
Voltage Drop	I_{OUT}=100mA, T_J=25°C		V_{DROP}	--	1.7	--	V
Peak Output Current	T_J=25°C		Io peak	--	0.15	--	A
Temperature Coefficient of Output Voltage	I_{OUT}=5mA, 0°C≤T_J≤150°C		$\Delta V_{OUT}/\Delta T_J$	--	-1.3	--	mV/ °C

ELECTRICAL CHARACTERISTICS CURVE

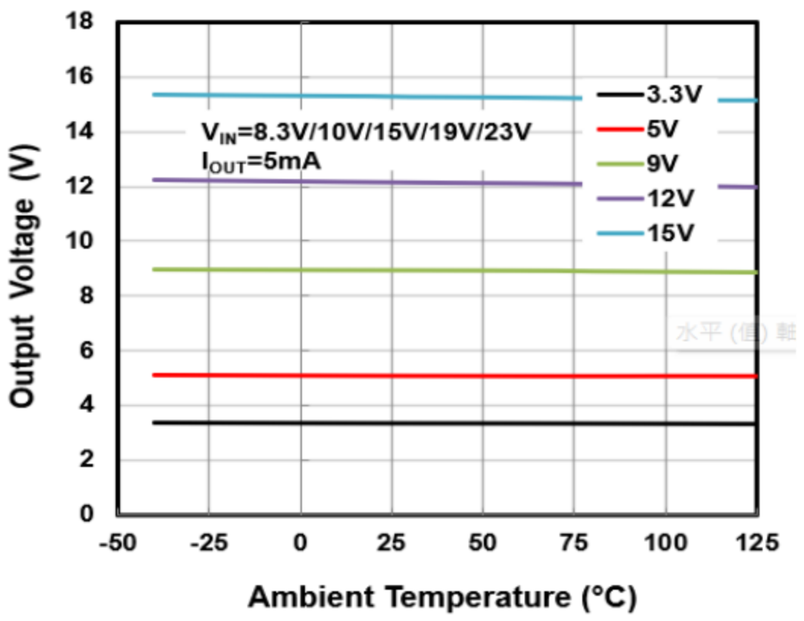


Fig 1. Output Voltage vs. Ambient Temperature

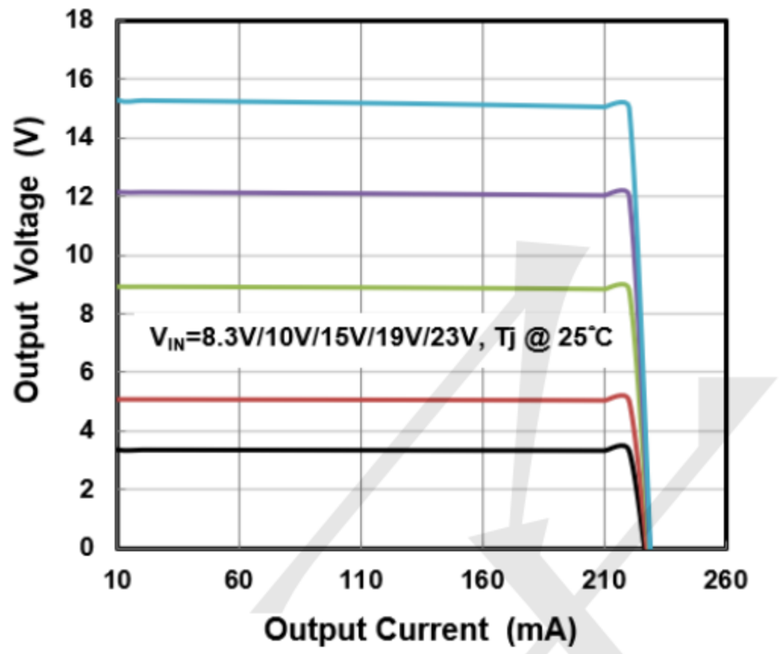


Fig 2. Output Voltage vs. Output Current

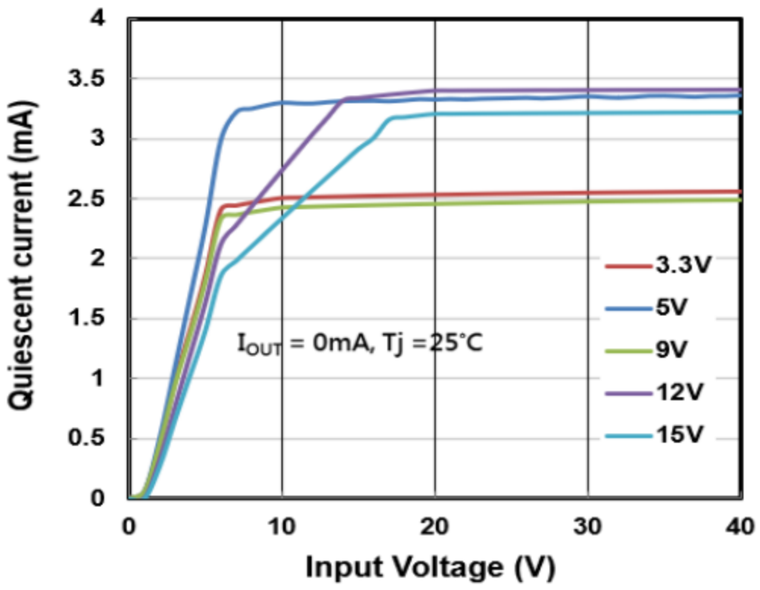


Fig 3. Quiescent Current vs. Input Current

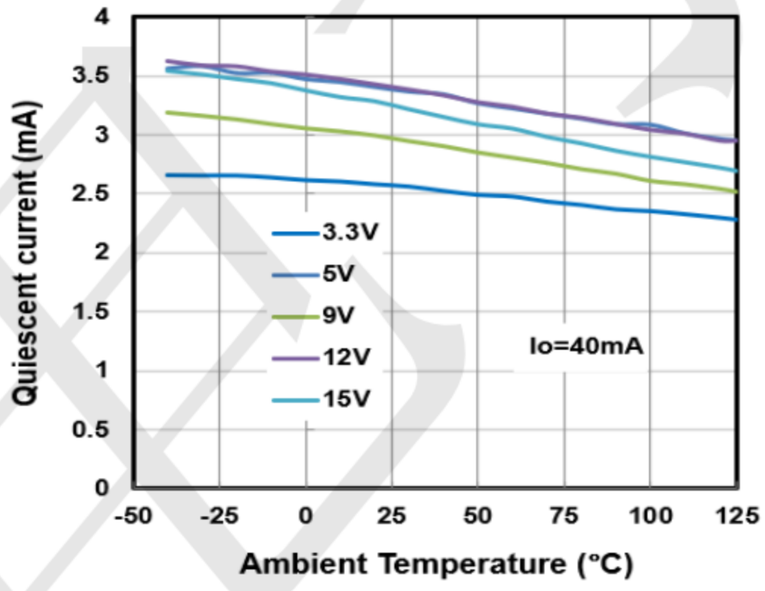


Fig 4. Quiescent Current vs. Temperature

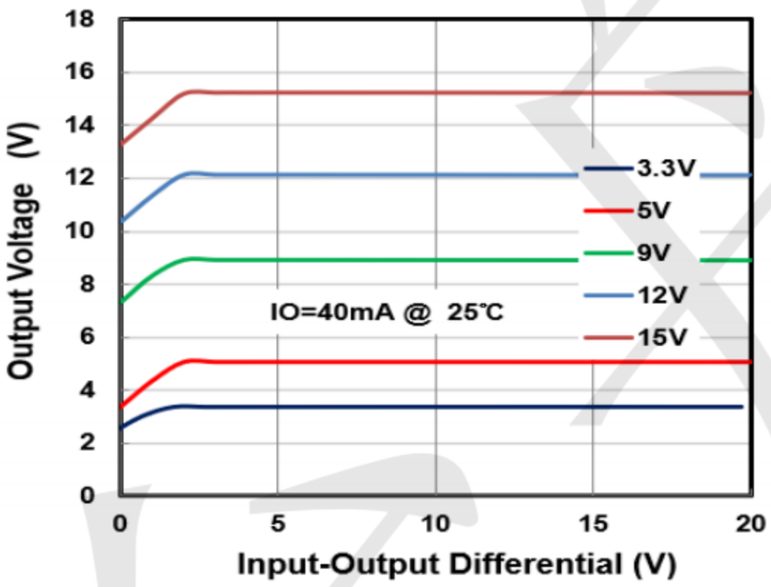
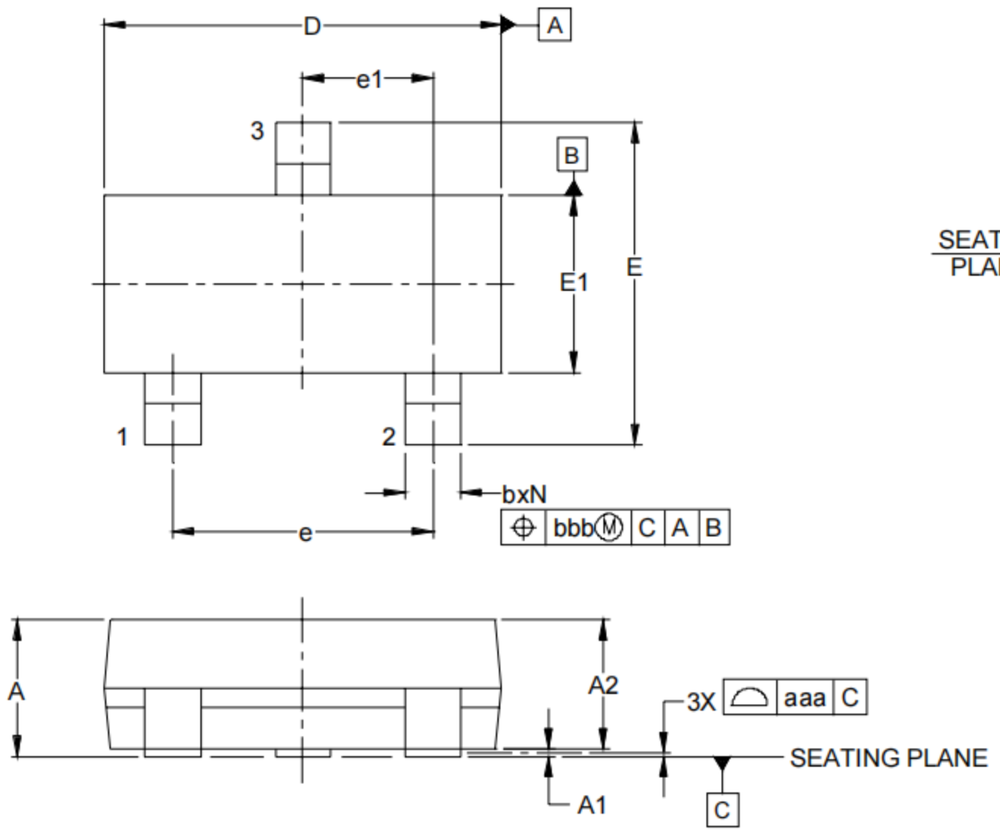
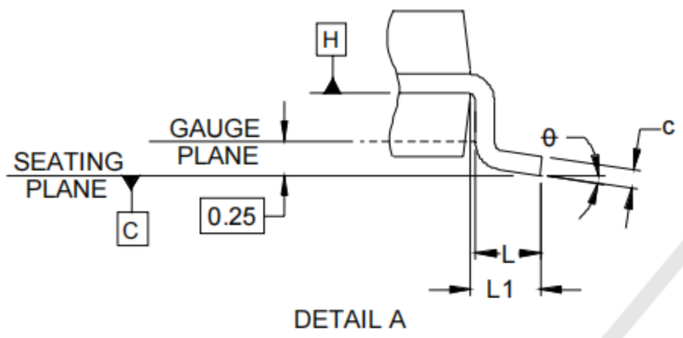


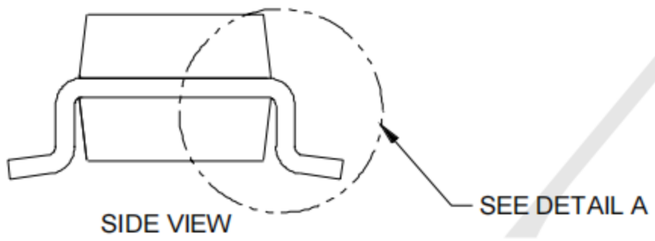
Fig 5. Output Voltage vs. V_{IN}-V_{OUT} Diff.

Outline Drawing - SOT23

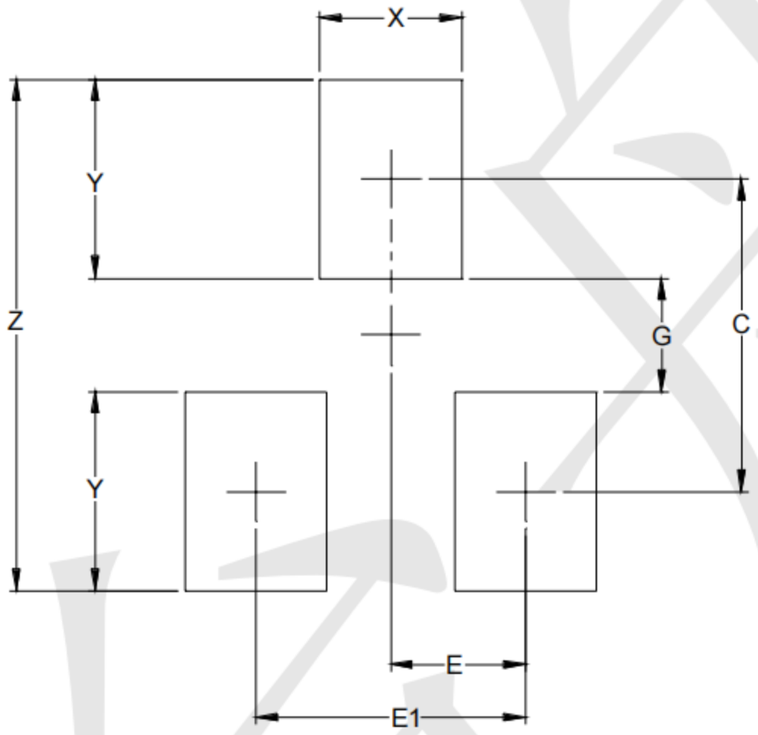




DIMENSIONS						
DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.044	0.89	-	1.12
A1	.000	-	.004	0.01	-	0.10
A2	.035	.037	.040	0.88	0.95	1.02
b	.012	-	.020	0.30	-	0.51
c	.003	-	.007	0.08	-	0.18
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.90 BSC		
e1	.037			0.95 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	.022			(0.55)		
N	3			3		
θ	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.008			0.20		



Land Pattern - SOT23



DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.087)	(2.20)
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60