

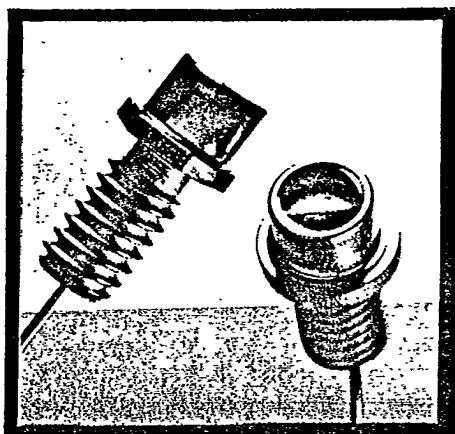
STCE

Laser Diodes

905nm Pulsed Window output

T-41-05

LA Series



FEATURES:

- GaAs/GaAlAs single heterostructure laser design
- High peak output power for short pulse applications
- Single chip devices
- Mounted in standard options of rugged, fully hermetic window capped cases
- Ideally suited to security, weapon simulation and ranging applications

ENGINEERING REFERENCE (Dimensions in inches [mm])

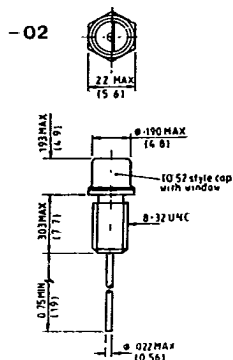
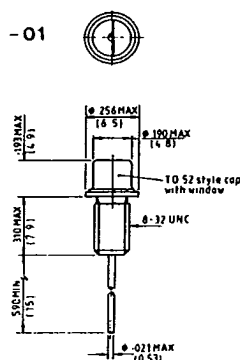
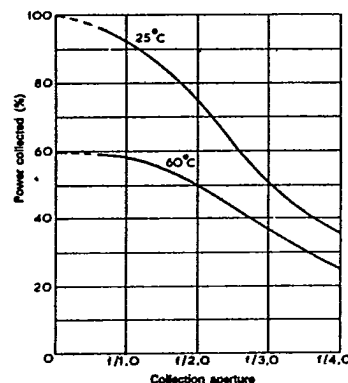


Fig 1 POWER VERSUS COLLECTION APERTURE



POLARITY: case negative
Case must be mounted on a heat sink.

The OPTICAL distance from the emitting face of the laser to the seating face of the flange is nominally 3.4 mm.

CONCENTRICITY of the centre of the emitting face with the centre axis, in any direction, is 0.3 mm max.

TYPICAL PERFORMANCE DATA at 25°C.

WAVELENGTH 895 to 915 nm
at peak intensity.

Type	Peak output min.	Defining aperture	Duty factor	Pulse width	Current Drive				Beam divergence //junc		Emitting area length width	
	Φ_0	f/no.	D	t_w	I_F	I_{th}	V_F	$\Delta\lambda$	α_n	α_i	s	d
	W		%	ns	A	A	V	nm	degrees	degrees	mil	mil
LA1-02	0,7	4	0,02	200	15	4,5	7	4,5	15	20	3	0,08
LA3-02	3	0,75	0,02	200	20	6	11	4,5	15	20	5	0,08
LA5-02	5	0,75	0,02	200	25	8	11	4,5	15	20	6	0,08
LA7-01	7	0,75	0,02	200	40	12	12	4,5	15	20	9	0,08
LA8-02	8	0,75	0,02	200	40	12	12	4,5	15	20	9	0,08
LA10-02	10	0,75	0,02	200	40	12	12	4,5	15	20	9	0,08

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EDITOR

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ABSOLUTE MAXIMUM RATINGS

(at $T_{case} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Symbol	Min.	Max.	Units
Peak drive current	I_{FM}		15	A
at $t_w = 200\text{ns}$			25	A
D = 0.02%			30	A
LA7-8-10			45	A
Peak output power, $t_w = 70\text{ns}$	P_o		8	W
(near burn-off)			15	W
LA1			20	W
LA3			35	W
LA5			300	ns
LA7-8-10			0.2	%
Pulse width	t_w			
(at $I_F = 75\%$ max D = 0.02%)				
Duty Factor	D			
(at $t_w = 200\text{ns}$, $I_F = \text{typical}$) *				
Reverse voltage	V_R		1	V
Operating temperature*	T_{case}	-40	-70	$^{\circ}\text{C}$
Storage temperature*	T_{amb}	-45	-85	$^{\circ}\text{C}$
Insertion torque			0.6	Nm

MAXIMUM RATINGS

The maximum values given in the table apply to each parameter in isolation. That is when all other maximum rated parameters have the value given under 'Typical Performance Data'. It may not be assumed that maximum values of more than one parameter can be applied to a device at the same time.

Detailed study of the graphs and data is required to determine permissible operating conditions other than those under which the device is characterised.

It is recommended that advice is sought from the manufacturer before final commitment is made to non standard conditions.

OPTICAL OUTPUT POWER

Within the maximum operating current rating, the permissible optical output power is limited by the 'burn-off' tolerance of the diode. The 'burn-off' level is the value of peak optical output power at which catastrophic damage to the laser output facet occurs with a corresponding drop in lasing efficiency.

Burn-off tolerance is, to a first order, proportional to the total optical energy (Watts $\times$ seconds) in the output pulse. The maximum peak output is therefore dependent on the pulse width.

* At temperatures below 25°C care must be taken to ensure that the output power does not exceed the rated value at 25°C

* At 10A max for type LA1-02

fig. 2 Output Power v Duty Factor

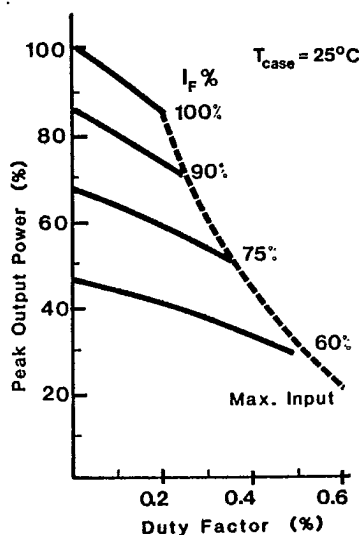
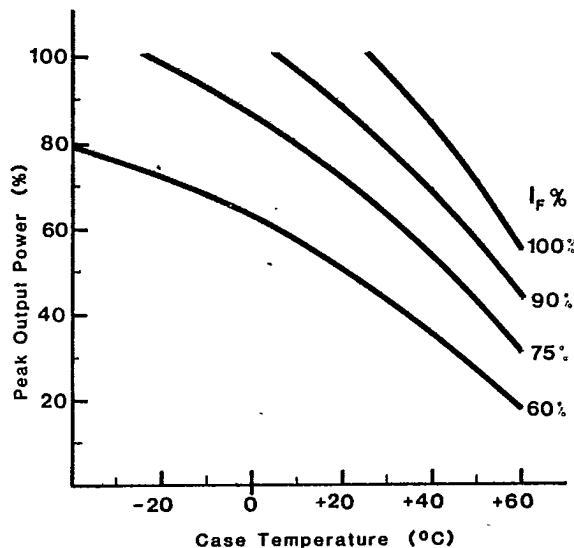


fig. 3 Output power v Case Temperature.



WARNING—Radiations emitted by these devices can be dangerous to the eyes and appropriate precautions must be taken in use.

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